

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: Southern Nuclear Operating Company, Inc.
Vogle Electric Generating Plant, Units 3&4

Docket Number: 52-025-LA-2 and 52-026-LA-2

Location: teleconference

Date: Wednesday, August 3, 2016

Work Order No.: NRC-2522 Pages 1-132

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING BOARD PANEL

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HEARING

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In the Matter of: : Docket Nos.
 SOUTHERN NUCLEAR : 52-025-LA-2
 OPERATING COMPANY, INC.: 52-026-LA-2
 : ASLBP No.
 (Vogtle Electric : 16-946-02-LA-BD01
 Generating Plant, :
 Units 3 and 4) :

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Wednesday, August 3, 2016

Teleconference

BEFORE:
 RONALD M. SPRITZER, Chairman
 NICHOLAS G. TRIKOUROS, Administrative Judge
 GARY S. ARNOLD, Administrative Judge

1 APPEARANCES:

2

3 Counsel for the Applicant

4 Millicent Ronnlund, Esq.

5 M. Stanford Blanton, Esq.

6 Alan Lovett, Esq.

7 of: Balch and Bingham, LLP

8 1901 Sixth Avenue North

9 Suite 1500

10 Birmingham, AL 35203

11 205-226-8744

12 mronnlund@balch.com

13

14 On Behalf of the Nuclear Regulatory Commission

15 Ian Irvin, Esq.

16 Marcia Carpentier, Esq.

17 Anita Ghosh, Esq.

18 of: U.S. Nuclear Regulatory Commission

19 Office of the General Counsel

20 Mail Stop O-15D21

21 Washington, DC 20555-0001

22 301-415-4126

23 marcia.carpentier@nrc.gov

24

25

1 On Behalf of the Blue Ridge Environmental
2 Defense League, Inc.

3 Louis A. Zeller

4 Administrator and Science Director

5 of: Blue Ridge Environmental Defense League, Inc.

6 P.O. Box 88

7 Glendale Springs, NC 28629

8 336-982-2691

9 bredl@skybest.org

10
11 ALSO PRESENT:

12 Clinton Ashley

13 Jonathan Barr

14 Amy Chamberlain

15 Anita Ghosh

16 Anne-Marie Grady

17 Arnold Gunderson

18 Chandu Patel

19 Jason Redd

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P R O C E E D I N G S

9:33 a.m.

CHAIRMAN SPRITZER: Let's go ahead and go on the record.

My name is Ronald Spritzer. I am the Chairman of this Atomic Safety and Licensing Board.

We are here in the case of Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4. This is Docket Number, or Numbers 52-025-LA-2 and 52-026-LA-2, also ASLBP Number 16-946-02-LA-BD01.

And we are here on the Petition for Leave to Intervene and Request for Hearing by the Blue Ridge Environmental Defense League and its chapter Concerned Citizens of Shell Bluff regarding Southern Nuclear Company's request for license amendment for containment hydrogen igniters, LAR-15-003. And that petition was originally filed on May 2, 2016.

And we're here to hear argument on standing and contention admissibility.

I've already introduced myself. Again, I'm Ron Spritzer. I am an Administrative Judge, legal judge here. My background, of course, is as an attorney.

I'll ask the other two judges sitting next

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1 to me to introduce themselves, starting on my right.

2 JUDGE ARNOLD: I'm Judge Arnold. I'm a
3 nuclear engineer and my background has been with the
4 Naval Reactors Program prior to the NRC.

5 JUDGE TRIKOUROS: I'm Nick Trikouros. I'm
6 a nuclear engineer. My background is the commercial
7 nuclear industry and a number of years a private
8 consultant.

9 CHAIRMAN SPRITZER: Why don't we go around
10 from the participants in the case? Let me ask the
11 persons who will actually be speaking, the
12 representatives, to identify themselves. And if you
13 have anybody with you in the room who -- in the room
14 with you that will not be participating, please
15 identify them as well.

16 Why don't we start with the Petitioners?

17 MR. ZELLER: Good morning. This is Lou
18 Zeller representing the Blue Ridge Environmental
19 Defense League and the Concerned Citizens of Shell
20 Bluff.

21 CHAIRMAN SPRITZER: And are you by
22 yourself there, Mr. Zeller?

23 MR. ZELLER: I am alone here in the
24 office. I have my technical expert, Arnold Gundersen,
25 also online.

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1 CHAIRMAN SPRITZER: All right. I see Mr.
2 Gundersen.

3 All right, why don't we move on to the NRC
4 staff? I think you have two representatives. Why
5 don't you identify both of those and anyone else who's
6 with you in the room?

7 MR. IRVIN: All right. My name is Ian
8 Irvin and I'm representing the NRC staff, at least
9 regarding standing. With me is Ms. Marcia Carpentier,
10 she'll be representing NRC staff concerning contention
11 admissibility.

12 With us are Mr. Clinton Ashley, Jonathan
13 Barr, Ms. Anita Ghosh, Ms. Anne-Marie Grady and Mr.
14 Chandu Patel.

15 CHAIRMAN SPRITZER: And for the Southern
16 Nuclear Company?

17 MS. RONNLUND: Good morning. This is
18 Milli Ronnlund with Balch & Bingham for Southern
19 Nuclear. In the room with me I have Jason Redd and
20 Amy Chamberlain of Southern Nuclear. I also have Stan
21 Blanton and Alan Lovett with Balch & Bingham.

22 CHAIRMAN SPRITZER: Very good, thank you.

23 We do have some members of the public who
24 are listening on telephone lines. Let me briefly give
25 an introduction to what we're doing here today.

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1 For their benefit, as I've indicated, a
2 Petition for Leave to Intervene in a License Amendment
3 has been filed by the Blue Ridge Environmental Defense
4 League and its chapter Concerned Citizens of Shell
5 Bluff.

6 The license amendment relates to the
7 addition of two hydrogen igniters in the -- in or near
8 something called the in-containment refueling water
9 storage tank, which we may abbreviate as IRWST so
10 we're not challenged by that rather long phrase every
11 time we mention it. And the Petitioners are
12 challenging the support or justification for that
13 amendment.

14 We will be hearing argument today on their
15 standing, that is, whether they have an actual or
16 threatened injury sufficient enough to justify their
17 participation in the case.

18 And then we'll also be hearing argument on
19 the admissibility of their contentions. Contentions
20 are generally what you might refer to as their claims,
21 their arguments why the amendment should not be
22 granted. Before we can proceed to an evidentiary
23 hearing, however, those contentions have to meet some
24 rather strict requirements.

25 So, that's the second issue we'll be

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1 hearing argument on today. There are no witnesses.
2 We will not be taking any evidence. We will simply be
3 listening to the arguments presented by the parties'
4 representatives.

5 We won't be using time cards today. We do
6 have a rough -- we do have allotted time for all of
7 the representatives. For technical reasons, we'll
8 dispense with the time card. But I'll give you a
9 warning. Generally, we will let you speak, certainly
10 long enough to answer all the judges' questions that
11 we may have. And I think we've given everybody enough
12 time, but you should also have time to make whatever
13 presentation you may have prepared.

14 Now, we do have a little different issue
15 here than when you were in person as far as if you
16 need to confer with someone who's there with you, or
17 in the case of Mr. Zeller, Mr. Gundersen who is in a
18 different location, we'll allow you to do that and I
19 won't penalize you in terms of your time unless it
20 really gets out of hand.

21 But you need to let us know that and you
22 can mute the phones, I believe. Let me check with our
23 technical person. You'll have to mute your phones so
24 you can confer. We will, however, allow you to do
25 that, so just let me know "I need to confer with

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1 someone who's here with me" or with Mr. Gundersen for
2 Mr. Zeller, and we'll give you time to do that.

3 As I understand, the argument -- well, the
4 argument order will be the Petitioners go first. We
5 didn't say whether the staff or Southern Nuclear would
6 go second. Have you all agreed among yourselves as to
7 who will speak second?

8 MS. RONNLUND: No, Your Honor.

9 CHAIRMAN SPRITZER: Do have your
10 preference? Who wants to speak first for the staff or
11 Southern Nuclear?

12 MS. RONNLUND: I'll leave it up to the
13 staff, whatever they prefer.

14 CHAIRMAN SPRITZER: All right.

15 MS. CARPENTIER: This is Marcia Carpentier
16 for the staff. It is usually the case in these
17 matters that staff goes third, and we would have no
18 problem with following that, or reversing it, if
19 necessary.

20 CHAIRMAN SPRITZER: All right. Well, I
21 think Southern Nuclear deferred to you. So, if the
22 normal procedure is the staff goes third, we'll follow
23 that. We'll see if my colleagues prefer some
24 different order.

25 All right. And Petitioners have 30

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1 minutes. I understand Mr. Zeller will be speaking for
2 the Petitioners. Be sure to speak into the microphone
3 and identify yourself for the benefit of the court
4 reporter. I think that's all I have in the way of
5 housekeeping, introductory matters.

6 Well, we will take a break, probably ,it's
7 about 20 of, we'll go probably for an hour and
8 hopefully get through the Petitioners and Southern
9 Nuclear, and then take a break and move on to the
10 staff.

11 Are there any questions before we get
12 started? Procedural questions?

13 Hearing none, why don't we move ahead then
14 and let's hear from the Petitioners. Mr. Zeller?

15 MR. ZELLER: Yes, thank you, Judge
16 Spritzer.

17 I would like to reserve, from our 30
18 minutes, ten minutes for rebuttal, if I might.

19 CHAIRMAN SPRITZER: We told you you could
20 reserve five, but unless there's some objection, we'll
21 allow you to reserve ten.

22 MR. ZELLER: That would be sufficient.

23 CHAIRMAN SPRITZER: All right.

24 MR. ZELLER: Well, good morning, Judge
25 Chairman Spritzer, Judge Trikouros and Judge Arnold.

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1 We welcome this opportunity to present our arguments
2 on the standing and contention admissibility.

3 Today, it is incumbent upon the
4 Petitioners to make a showing sufficient to require
5 reasonable minds to inquire further.

6 Issues raised in our contentions are
7 serious safety matters which will rise to the highest
8 levels of concern for public safety.

9 Our focus today is not on a procedural
10 matter, such as environmental impacts or water
11 quality, which we have argued in other proceedings.
12 No, our contention is the potential for hydrogen
13 explosions at Plant Vogtle.

14 (Cell phone ringing.)

15 CHAIRMAN SPRITZER: Can we pause here for
16 a second? We seem to be getting a telephone.

17 MR. ZELLER: I apologize. That was a
18 wrong number.

19 As important as environmental concerns
20 are, it's the need to protect public safety that
21 deserves the highest consideration of the Atomic
22 Safety Licensing Board, because people's lives are at
23 stake. And the Nuclear Regulatory Commission, of
24 course, is the governmental body primarily responsible
25 for regulation and safety of nuclear activities.

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1 As outlined in NRC's procedures, the
2 threshold test is whether we will have made a showing
3 necessary to initiate an inquiry into a specific
4 alternative.

5 Before us is Southern Company's license
6 amendment request to add two auxiliary hydrogen
7 igniters, spark plugs which prevent excessive levels
8 of hydrogen within the containment of the nuclear
9 power plant. An error here by Southern Company could
10 spell catastrophe for the residences of Shell Bluff,
11 Georgia.

12 Therefore, two contentions we believe
13 merit exploration are that, one, the proposed
14 modification by Southern Nuclear Company creates an
15 extremely dangerous situation rather than mitigating
16 it.

17 And that, two, Southern Company's
18 engineering and support of the proposed modification
19 fails to evaluate historical precedence of hydrogen
20 explosions as a significant contributor to atomic
21 reactor risk.

22 In other words, we contend that Southern
23 Company's request puts igniters perhaps in the wrong
24 place and lacks confidence of analysis and support.

25 Both NRC staff and Southern Company

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1 contend that our contentions cannot be admitted
2 because they challenge rules of basic design of the
3 AP1000 reactor.

4 For example, in their answer to our
5 Petition, NRC staff said igniter placement has met the
6 requirements of 10 CFR 50.44 and NUREG-1793. That is
7 the federal regulations and the final safety
8 evaluation report related to certification of the
9 AP1000 standard design.

10 Likewise, Southern Company answers our
11 Petition saying the two contentions in the Petition
12 bar them from attacks on the AP1000 DCD, the Design
13 Control Document, analysis underlying the addition of
14 two new igniters at the in-containment refueling water
15 storage tank roof vents. That's the Southern's answer
16 at three.

17 Both documents attempt to drive
18 Petitioners' contention into the indefensible corner
19 of challenging the AP1000 Design Control Document in
20 a rule change.

21 However, Petitioners have studiously
22 avoided these areas, totally cognizant of the finality
23 provisions of federal regulations at 10 CFR
24 52.63(a)(1).

25 First, we specifically did not challenge

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1 the initial 64 igniter locations of the AP1000 design,
2 only the two new ones. This placement is based solely
3 on so-called engineering judgment.

4 If Southern Company's original submittal
5 had been accompanied by hard analysis our argument
6 would have been more difficult to make. For example,
7 there are flame propagation analysis techniques that
8 could have and should have been used.

9 Second, we did not compare the AP1000 to
10 Fukushima Daiichi, except to note that at Daiichi Unit
11 1, the deflagration appears to have begun at the top
12 floor; on Daiichi 3, the detonation appears to have
13 been initiated in the basement. Hence, the need at
14 Vogtle for a detailed analysis rather than a judgment
15 call.

16 Third, the possibility of failure by the
17 AP1000 containment was discussed in a historical
18 context dating back to an Advisory Committee on
19 Reactor Safeguards meeting in 2010.

20 Consequences of containment failure are
21 grave in this matter, and the AP1000 chimney effect
22 makes it even worse. So a thorough analysis is
23 required, rather than an engineering judgment.

24 Fourth, Section (c) (5) of 10 CFR 50.44 on
25 structural analysis applies to the AP1000 and states,

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1 quote, an applicant must perform an analysis that
2 demonstrates containment structural integrity, end
3 quote. However, there was no analysis. Note the law
4 says "must perform." Engineering judgment is not that
5 same as analysis.

6 Fifth, Section 10 CFR 50.44(c)(3),
7 equipment survivability, also applies here and states,
8 "environmental conditions caused by local detonations
9 of hydrogen must also be included unless such
10 detonations can be shown unlikely to occur."

11 But Southern Company has shown that
12 denotation is likely, not unlikely. In fact, the
13 reason for the license amendment request in the first
14 place was that they believed excessive hydrogen might
15 actually accumulate. The burden is on that to show a
16 solution, not to use engineering judgment.

17 Finally, under 10 CFR Part 52, of course,
18 all nuclear power plant construction must be in accord
19 with the plant design's current licensing basis as
20 well as the applicable statutes and regulations.

21 The process of modify the licensing basis
22 is set forth in 10 CFR 52.98(f), which states any
23 modification to terms and conditions of a combined
24 license is a proposed amendment to the license.
25 Therefore, there now must be an opportunity for

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1 hearing on the amendment.

2 A licensee that requests an amendment must
3 perform, one, an applicability determination
4 evaluation; two, a safety/security interface
5 evaluation; three, construction impacts evaluation;
6 and, four, a 10 CFR 50.59 like screening evaluation.

7 For guidance, the Nuclear Regulatory
8 Commission has used COL Interim Staff Guidance 025
9 during construction of plant license under Part 52.
10 The Interim Guidance will be included in the next
11 update of Regulatory Guide 1.187, Guidance for
12 Implementation of 10 CFR 50.59 Changes, Tests and
13 Experiments.

14 CHAIRMAN SPRITZER: Mr. Zeller, let me ask
15 you a question related to this argument.

16 The DCD and the updated final safety
17 analysis report have a table, I'm sure you're familiar
18 with it, it's Table 6.2.4-6, which requires, among
19 other things, that hydrogen igniters be placed as
20 close to the source of hydrogen -- as close to the
21 hydrogen source as feasible.

22 Are you claiming that that instruction was
23 not complied with?

24 MR. ZELLER: What we're saying is that the
25 addition of the hydrogen igniters, the placement of

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1 them, is absolutely critical, and that engineering
2 judgment used to comply, as you have pointed out, as
3 close as feasible is based on an engineering judgment.
4 In other words, a best guess by an engineer, not
5 actual tests which were demonstrations, which would
6 show that that is the proper location.

7 Five inches one way or another is not
8 spelled out in 6.2.4-6. It just says as close as
9 possible. How as close as possible or as feasible
10 mean exactly? There's interpretation there in a sense
11 where the analysis fall short and actually should be
12 done.

13 CHAIRMAN SPRITZER: Well, are you saying
14 that these could have been placed in compliance with
15 that requirement in Table 6.2.4-6, they could have
16 been placed somewhere else other than where they were?

17 MR. ZELLER: Two additional igniters?

18 CHAIRMAN SPRITZER: Yes.

19 MR. ZELLER: That's right.

20 CHAIRMAN SPRITZER: They could have been
21 placed closer to the source of hydrogen, then?

22 MR. ZELLER: Absent analysis, we can't say
23 where they should be. That's the failure here that we
24 are pointing out in our contention.

25 CHAIRMAN SPRITZER: All right.

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1 JUDGE ARNOLD: Well, let me just ask a
2 question on that same issue.

3 Now, what that table says is, one of the
4 potential locations is the locations where the
5 potential hydrogen release location can be defined,
6 i.e., above the IRWST spargers, at IRWST vents, et
7 cetera.

8 Now, it seems to me that this license
9 amendment is making the actual design of the plant
10 better reflect the DCD than the original placement of
11 igniters. Do you not agree with that?

12 MR. ZELLER: We're talking additional
13 igniters, which are not outlined in the Design Control
14 Document. So, how do we know that? There's no
15 analysis to show where they should be located.

16 JUDGE ARNOLD: Well, I -- doesn't that
17 table say near the IRWST vents? And aren't they being
18 more consistent with these new igniters than they were
19 with the original igniters?

20 MR. ZELLER: We cannot tell that. This is
21 based on a best guess scenario, not an actual
22 analysis. Because of -- that's why we raised the
23 issues of previous deflagration impacts and hydrogen
24 igniter failures, is that this must be done properly
25 at Plant Vogtle. The license amendment request for

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1 LA-2 calls into question where that should be. In
2 other words, there's an interpretation as to "close as
3 feasible" and where the hydrogen emission point can be
4 defined.

5 Those are subjective determinations, which
6 are spelled out in 6.2.4-6, "as close as feasible,"
7 and where the hydrogen can be defined. That doesn't
8 tell me where to put the hydrogen igniter here or
9 here.

10 JUDGE ARNOLD: So, this change is
11 certainly not resulting in hydrogen igniters further
12 from the IRWST vents, correct?

13 MR. ZELLER: Can't say.

14 JUDGE ARNOLD: Okay, thank you.

15 MR. ZELLER: The question, exactly, you
16 put your finger on it.

17 JUDGE TRIKOUROS: Well, I'd like to follow
18 up on that. We're talking about hydrogen that's in
19 the IRWST, that the only release for that hydrogen
20 would be through the hooded vents or the roof vent,
21 correct?

22 MR. ZELLER: That's right.

23 JUDGE TRIKOUROS: There are igniters in
24 the IRWST at various other locations. There are
25 igniters, if I remember correctly, about 30 feet above

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1 the roof vents along the doghouse, steam generator
2 doghouse wall.

3 Just in terms of logic, it doesn't appear
4 that there would be any analysis that would tell you
5 to place them further away from the IRWST or further
6 into the IRWST. So, what type of analysis are you
7 referring to?

8 MR. ZELLER: The --

9 JUDGE TRIKOUROS: Is this a 3D mixing
10 analysis of some sort? I don't understand it.

11 MR. ZELLER: Well, that's an engineering
12 question, and I think that is precisely what is
13 lacking here. I mean, these are technical questions
14 which we would hope to bring up, with the assistance
15 of our technical expert and nuclear engineer himself,
16 Arnie Gundersen.

17 But he has pointed out, and we have
18 spelled out in our filings, the tests that we would
19 recommend that Southern Company do before the actual
20 determination of where these two additional hydrogen
21 igniters should be located.

22 It was Southern Company, in their request,
23 which said that design reviews in 2011 identified a
24 credible scenario in which the applicable plant damage
25 state meets the core damage frequency cutoff to be

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1 considered as part of the severe accident analysis.

2 It's convoluted, but what it says is that
3 this bad stuff could happen.

4 JUDGE TRIKOUROS: Well, there's some
5 confusion there, too, which we'll ask later on, but
6 that is not the only scenario, I would assume, in
7 which hydrogen ends up being vented from the primary
8 -- the reactor pressure vessel to the IRWST via those
9 Stage 1, 2, 3 -- ADS State 1, 2, 3 spargers.

10 I get the impression, and I will ask this
11 question later, that perhaps the partial failure of
12 ADS 4, Stage 4, valves results in a more significant
13 release than the other events. But I don't think that
14 there's anything unusual going on here. I still don't
15 quite understand a number of things regarding those
16 vents, but I'll ask that later.

17 But, Mr. Gundersen, then, or whoever could
18 answer this question, would it -- does it make sense
19 that an analysis would result in telling you to put
20 igniters further away from the IRWST or further in the
21 IRWST? I don't understand -- where there already are
22 other igniters. I don't understand that point.

23 MR. ZELLER: You don't understand why
24 there is a problem -- I'm sorry, Judge Trikouros.

25 JUDGE TRIKOUROS: Well, what I don't

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1 understand is what this analysis is that you're
2 referring to that might tell you to put the igniters
3 either further away from the IRWST or further into the
4 IRWST.

5 There's logical reasons I could provide
6 that say neither of those make any sense. Therefore,
7 if an analysis told me to do that, I would tell you
8 that I would review that analysis and purely try to
9 understand why it's telling me to do such a thing.

10 MR. ZELLER: Well, for example, if flame
11 propagation analysis could have been done in this
12 case. It was not done, so that is one potential
13 technical analysis that should have been done, which
14 was not. That would provide a basis for determination
15 of where the additional igniters would be located.
16 That's just one example.

17 CHAIRMAN SPRITZER: Well, if I understand
18 the position of the staff and Southern Nuclear, it's
19 basically, look, we've done all this analysis from the
20 original 64 igniters, so there's no need to repeat it
21 here because we're only adding two additional igniters
22 and we're following the criteria that was developed
23 for placement of those -- for placement of any
24 igniters in the containment, whether they happen to be
25 near the IRWST or somewhere else. What's wrong with

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1 that argument?

2 MR. ZELLER: That's what they say. But
3 there is no analysis to support it. I mean --

4 CHAIRMAN SPRITZER: They've done the
5 analysis, that's what they're saying. Why do they
6 need to do -- are you saying they need to go back to
7 square one and repeat the analysis for all the
8 igniters? Or that they need to a separate analysis
9 for just these two additional igniters?

10 MR. ZELLER: The Design Control Document
11 calls for 64 igniters. So we're not challenging the
12 placement of the 64 igniters. What we have raised in
13 our contention is the two additional hydrogen
14 igniters, which are identified by the applicant, by
15 Southern Company, as being necessary because of a
16 credible scenario for hydrogen deflagration from a
17 fire within the containment structure, which would add
18 to the pressure within the reactor building which is
19 also -- which is already very close to its upper
20 limits as currently designed.

21 JUDGE TRIKOUROS: Well, when we first
22 reviewed your petition, the words are very clear in
23 your explanation of your contention that what you
24 referred to as the proposed solution, which is the two
25 additional hydrogen igniters, introduces as a new

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1 threat to the already vulnerable AP1000 containment.
2 And I have not been able to understand what that new
3 threat is. Perhaps you can explain that to me now.

4 MR. ZELLER: From what we know in the
5 historical record -- and that's why the allusion to
6 what happened at Fukushima Daiichi, where there were
7 propagation of hydrogen proceeded from either the
8 basement story or from the top story.

9 So there are uncertainties with regards to
10 hydrogen, and there are omissions in terms of where
11 hydrogen comes from within the reactor shell which
12 were overlooked or not even addressed by Southern
13 Company in their license amendment request.

14 So there is certainly additional analysis
15 that needs to be done.

16 JUDGE TRIKOUROS: Okay, again, I do not
17 understand what these additional analyses are and I
18 haven't yet heard from you what they are.

19 And with respect to Fukushima, we'll
20 discuss this later, I believe. But, fundamentally, it
21 isn't clear at all what the applicability of the Unit
22 1 versus Unit 3 explosion locations have anything to
23 do with this particular case. And I would like to
24 hear that, if I could, as well.

25 You know, the secondary -- the reactor

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1 building at Units 1 or 3 Fukushima have no hydrogen
2 control at all. Therefore, the minute you reach a low
3 level flammability point, it's going to explode. It
4 could be anywhere at any time.

5 So I just don't understand how one can
6 make that comparison. So I'll look forward to that
7 explanation as well.

8 MR. ZELLER: Well --

9 CHAIRMAN SPRITZER: Mr. Zeller, maybe it
10 would be useful, I mean, what we're all trying to
11 understand, get some better idea -- or at least I'm
12 trying to understand, and I think Judge Trikouros is
13 also -- what specific additional analysis you think
14 should take place here?

15 Maybe it would be helpful for you to talk
16 with Mr. Gundersen off, you know, and mute your phone
17 and talk with Mr. Gundersen briefly. If you want to
18 do that, we'll give you a couple minutes to do that.

19 MR. ZELLER: Well, I would welcome that,
20 Your Honor. But, in brief, rather than performing a
21 rigorous gaseous diffusion and flame propagation
22 analysis, Southern Company chose to place two hydrogen
23 igniters, the two extra igniters, in what they say "a
24 likely area" by relying on the personal engineering
25 judgment of its engineers.

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1 From a chemical standpoint, I'm told,
2 hydrogen has been known to stratify. It could cause
3 the very explosion Westinghouse and Southern Company's
4 proposed igniters are being supplied to prevent. That
5 is the basis for the much more rigorous analysis we
6 feel is warranted. It's the basis of Contention 2,
7 which targets the failures by Southern Company in its
8 license amendment at Plant Vogtle.

9 JUDGE TRIKOUROS: Well, you know, that's
10 --

11 MR. ZELLER: And it supports the
12 contentions Southern Company's license amendment
13 assumes a concentration of hydrogen that is uniform
14 throughout the AP1000, including sub-compartments.

15 The company hypothesizes that the only
16 source hydrogen is emitted from the reaction between
17 zirconium and water. Other sources of hydrogen
18 production are ignored. Radiolytic decomposition of
19 water has been ignored as a source of both hydrogen
20 and oxygen.

21 And, finally, Southern Company's analysis
22 ignores the possibility that an igniter can create a
23 flame that blows back due to the in-containment
24 refueling water storage tank roof vents along the
25 steam generator doghouse wall into the sub-compartment

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1 causing a serious detonation. The phenomenon is not
2 speculative; such backflow did occur after Fukushima
3 Daiichi.

4 JUDGE TRIKOUROS: Yeah, I understand what
5 you're saying and we will get to all of that. But
6 we're right now dealing specifically with the question
7 of what the new threat is that's posed by these two
8 igniters, and the question of what analysis would be
9 necessary to place these two igniters, other than the
10 very logical argument that's been provided by Southern
11 Nuclear.

12 Now, as I said earlier, the only
13 possibilities are you would place the igniters either
14 away from the IRWST or further in the IRWST. There
15 are no other options.

16 Let me be more specific. With respect to
17 the analysis further away from the IRWST, the LAR
18 itself specifically says that the region between the
19 IRWST vent and the igniters that are located 30 feet
20 above it -- and not be evaluated to determine, for
21 example, if those igniters 30 feet above it would be
22 effective. And the reason for that is they, in their
23 words, the region is too complex to be accurately
24 modeled.

25 So, since they can't determine if those

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1 two igniters that are up there would be effective,
2 they decided to put them at the release point on the
3 IRWST. Now, all of that makes sense.

4 It's not clear to me what an analysis --
5 what analysis you would do, especially since the
6 region above it is too complex to be accurately
7 modeled. Therefore, what that means, to me, is that
8 it would not be able to discern individual igniters'
9 effectiveness, which is I think what they're saying.
10 But we'll talk about that later.

11 MR. ZELLER: So --

12 JUDGE TRIKOUROS: I don't understand -- I
13 just don't understand where you're going with this new
14 threat and this new analysis.

15 MR. ZELLER: In my work with Blue Ridge
16 Environmental Defense League on air pollution and air
17 pollution modeling at various industrial sites, the
18 Savannah River Site and coal-fired power plants and
19 smaller industrial sources, we have run computer
20 models, gassing dispersion models, which are designed
21 to cope with simple situations, area sources, volume
22 sources, complex sources, hilly terrain and any other
23 variables within the realm of computer analysis.

24 Computer analysis is done on a routine
25 basis, and so I would call upon our technical expert

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1 at this point, Mr. Gundersen, to point out what other
2 type of analysis might could actually be done.

3 In fact, I believe that the outfit he
4 works for has investigated such scenarios.

5 CHAIRMAN SPRITZER: Mr. Zeller, if you
6 want to talk with him, as I suggested, that's fine.
7 But we want to hear from you. We don't want him
8 testifying. As we said, this is not an evidentiary
9 hearing.

10 So if you want to talk to him and he can
11 point you to some parts in his declaration or
12 somewhere else in the Petition that he wants to draw
13 out attention, that's fine. But we don't want to hear
14 from him directly because that would be the equivalent
15 of testimony or something like it.

16 But if you want to talk to him off the
17 record, mute your phone and go ahead and do that.

18 MR. ZELLER: With all due respect, then,
19 are we now talking about evidentiary information in
20 answer to the question of the technical nature of
21 where the actual additional hydrogen igniters are to
22 go? Or are we just simply laying out what the LAR
23 requires?

24 CHAIRMAN SPRITZER: What I'm trying to say
25 is, if there is some part of the record Mr. Gundersen

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1 would like to cite to us, you can talk to him about it
2 and he can tell you and you can tell us.

3 You don't have to do that. I'm simply
4 giving you the option. But we don't want to hear from
5 him directly because it would be the equivalent or
6 very much like testimony.

7 JUDGE ARNOLD: It seems to me if he's only
8 clarifying what's already in the Petition, I'd like to
9 hear from him. That's not testimony.

10 CHAIRMAN SPRITZER: All right, as long as
11 he's limited to that, we'll go ahead and do that.

12 MR. ZELLER: I have made provisions to
13 talk to Mr. Gundersen alternatively, so I would ask
14 the Court's permission to do that now.

15 JUDGE ARNOLD: All right, very good.

16 (Pause.)

17 MR. ZELLER: Hello, Arnie? Yes, the phone
18 needs to be muted. Is the phone muted through the
19 system?

20 CHAIRMAN SPRITZER: We can --

21 MR. ZELLER: Or is it star six? I never
22 got that information.

23 CHAIRMAN SPRITZER: We can hear you just
24 fine. We can hear you right now. We couldn't hear
25 you earlier.

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1 MR. ZELLER: How do I mute that phone?
2 Can anyone tell me?

3 CHAIRMAN SPRITZER: Mute what phone?

4 MR. ZELLER: The audio that you are
5 hearing.

6 CHAIRMAN SPRITZER: You have to do it at
7 your phone. Do you have a mute button on your phone?

8 MR. ZELLER: I may lose you, I'll try it.

9 CHAIRMAN SPRITZER: We'll get you back, if
10 necessary.

11 MR. ZELLER: Can you hear me now?

12 CHAIRMAN SPRITZER: Yes.

13 MR. ZELLER: Can you hear me now?

14 CHAIRMAN SPRITZER: Yes.

15 MR. ZELLER: My phone will not do that.

16 CHAIRMAN SPRITZER: All right, can you
17 hang up and get it?

18 MR. ZELLER: I have a telephone which
19 helps me hear, because I have a hearing impairment.

20 CHAIRMAN SPRITZER: Well, do you have
21 another phone? You can -- you don't have to sit
22 there, you can go to another phone, call Mr. Gundersen
23 and speak to him where we can't hear you.

24 MR. ZELLER: Okay, I'll be back shortly.

25 (Whereupon, the above-entitled matter went

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1 off the record at 10:12 a.m. and resumed at 10:19
2 a.m.)

3 CHAIRMAN SPRITZER: All right, Mr. Zeller,
4 it sounds like you're back with us, as is everyone
5 else. Let's go back on the record.

6 MR. ZELLER: Okay, yes. Can you hear me?

7 CHAIRMAN SPRITZER: Yes, we can. Can you
8 hear us?

9 MR. ZELLER: Yes, I can.

10 CHAIRMAN SPRITZER: Very good.

11 MR. ZELLER: Thank you, Judge Spritzer, I
12 appreciate that. And, okay, so I have talked to Mr.
13 Gundersen, and there are actually four points.

14 The question that you asked about what new
15 threat has been identified is the wrong question. The
16 threat has been identified by Southern Company, and I
17 read to you, that the design reviews in 2011
18 identified a credible scenario in which the applicable
19 plant damage meets the core damage frequency cutoff.
20 The job at hand is to mitigate the new leakage path
21 that the 64 igniters do not resolve.

22 Number two, by placing the igniters, the
23 additional igniters, where they are, you can get flame
24 to propagate back into an area where the new threat
25 was identified. Hydrogen is lighter than oxygen.

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1 So, the assumption is that it is pure
2 hydrogen. But there's a stoichiometric mix caused by
3 the hydrolysis of water, H₂O, two hydrogens per
4 oxygen. So it's a stoichiometric mix of hydrogen and
5 oxygen, which is highly flammable. And so that is in
6 part of the analysis that would need to be done and
7 has not been done by Southern Company.

8 Number three is that the flame propagation
9 analysis is available and they chose not to do it.
10 They, Southern Company, chose not to do a flame
11 propagation analysis. These are available, I'm told
12 by our nuclear engineer. Southern Company simply
13 chose not to.

14 And the question of modeling, even complex
15 areas can be modeled. I started to go into that
16 myself based on my own experience, but it's
17 corroborated by Mr. Gundersen, who believes that, in
18 fact, such a basis could be modeled.

19 And so that's the very question that we're
20 putting before the Board.

21 CHAIRMAN SPRITZER: Do you challenge the
22 need for the hydrogen igniters as a whole, the
23 original 64 hydrogen igniters? Do you have any
24 problem with them?

25 MR. ZELLER: No.

1 JUDGE ARNOLD: Was the flame propagation
2 analysis performed for placing the original 64
3 igniters?

4 CHAIRMAN SPRITZER: You've kind of got two
5 questions there. Do you want to answer Judge Arnold's
6 first?

7 (Off-microphone comments.)

8 JUDGE ARNOLD: No, no, I'm just trying to
9 find out if you believe that they did it for the
10 original igniters and aren't doing it now, or whether
11 or not the placement of these two final igniters was
12 done in a method consistent with the original
13 igniters?

14 MR. ZELLER: I'd have to check with Mr.
15 Gundersen about that. I'm unsure.

16 CHAIRMAN SPRITZER: Well, why don't --
17 we'll give you some time. You'll have some time to
18 talk to him again during the break.

19 The question I had was, do you challenge,
20 or in this petition, are you challenging anything
21 about the original 64 igniters?

22 MR. ZELLER: No, Your Honor.

23 CHAIRMAN SPRITZER: All right.

24 MR. ZELLER: Not a point of our
25 contention.

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1 CHAIRMAN SPRITZER: Only the two new
2 igniters?

3 MR. ZELLER: Correct.

4 CHAIRMAN SPRITZER: All right. And what
5 specifically -- so you say additional analysis ought
6 to be done. That seems to be your primary argument.
7 Is there any other problem you have with the placement
8 of the two new igniters?

9 MR. ZELLER: That's it, in a nutshell.

10 CHAIRMAN SPRITZER: Okay. All right.

11 JUDGE ARNOLD: Well, while we're paused
12 here, let me -- I have a few questions concerning your
13 expert witness.

14 Now, the evolution, transport and
15 combustion of hydrogen during a severe accident are
16 topics of interest to nuclear engineering for which
17 there are few experts worldwide.

18 Now, I closely reviewed Mr. Gundersen's CV
19 and wasn't able to find anything that would suggest
20 that he has an in-depth knowledge of the hydrogen
21 behavior during a severe accident.

22 So, along the lines of his qualifications,
23 can you tell me, has Mr. Gundersen ever taken any
24 courses dealing with or performing experimentation or
25 analysis of hydrogen generation during a reactor

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1 accident?

2 MR. ZELLER: I would be happy to provide
3 that information, Judge Arnold.

4 JUDGE ARNOLD: Has he taken any courses
5 dealing with or performed experimentation or analysis
6 of hydrogen transport in containment during a reactor
7 accident?

8 MR. ZELLER: Again, we would be happy to
9 provide that information, yes sir.

10 JUDGE ARNOLD: Okay, so you don't know?
11 Has he taken any courses dealing with or performed
12 experiments or analysis of hydrogen combustion during
13 a reactor accident?

14 MR. ZELLER: With all due respect, I was
15 not aware we were talking about the qualifications of
16 our expert in this matter today.

17 JUDGE ARNOLD: Well, basically --

18 MR. ZELLER: We would be happy to provide
19 further documentation and explanation, in detail, of
20 Mr. Arnold's (sic) qualifications as a nuclear reactor
21 operator with four decades of experience. I cannot
22 tell you off the top of my head what he has done, what
23 courses he has attended in the course of that four
24 decade career as a nuclear operator.

25 But we're happy to do that. And, in fact,

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1 I would ask this Court's permission to provide that
2 information as soon as this proceeding is ready for
3 it.

4 JUDGE ARNOLD: You see, the reason I have
5 this question is you've stated that there was a new
6 hazard and you've based it entirely upon an expert
7 witness opinion that I haven't seen any support for
8 his opinion. And I'm trying to determine his
9 qualifications.

10 Now, since that new hazard basically is
11 important to you to establish standing, we have to
12 know his qualifications at this point rather than
13 delay that to a hearing. Do you understand that?

14 MR. ZELLER: I do, totally. And Mr.
15 Gundersen's role would be in the area of providing an
16 alternative. The threat has already been identified
17 by Southern Nuclear Company. Otherwise, there would
18 be no need for a license amendment in this matter and
19 we wouldn't be sitting here today.

20 JUDGE ARNOLD: Okay. On your petition,
21 pages three to five, you address standing. Now, my
22 understanding of it, you know, you cite the 10 CFR
23 2.309(d) for the requirements for standing. But it
24 appears that you're saying your members have standing
25 both under 309(d) and both by proximity. Is that a

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1 correct understanding of the petition?

2 MR. ZELLER: The members are members of
3 Blue Ridge Environmental Defense League, and our
4 chapter, Concerned Citizens of Shell Bluff, would
5 suffer, you know, possible harm, injury in fact, which
6 is the basis for representational standing in this
7 case. That's what we seek.

8 JUDGE ARNOLD: Well, okay, that would be
9 standing under Section 2.309(d), where you supply the
10 name, the nature of their property and their losses
11 and all that. Do you also have a proximity argument
12 for their standing?

13 MR. ZELLER: Yes, we did point out that
14 members live very close, within seven miles, some of
15 them, and to the local nuclear power station in Burke
16 County, Georgia.

17 JUDGE ARNOLD: Now, you say on page four
18 of your petition, quote, "As in Vermont Yankee, the
19 LAR is an action with obvious potential for offsite
20 consequences. The purpose of the hydrogen ignition
21 system is to prevent levels of hydrogen created by a
22 reactor accident from reaching concentrations
23 sufficient to breach the containment. Granting of the
24 LAR by the NRC would allow conditions to lead to
25 unsafe levels of hydrogen."

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1 Now, is this statement relevant to both
2 your 10 CFR 2.309 argument for standing and for your
3 proximity argument?

4 MR. ZELLER: That's correct.

5 JUDGE ARNOLD: Okay. Now, since this
6 license amendment only adds igniters, not moving or
7 deleting any, how can this change lead to a more
8 unsafe level of hydrogen? I mean, does placing
9 additional igniters produce a greater amount of
10 hydrogen, or permit a greater amount of hydrogen?

11 MR. ZELLER: Of course not.

12 JUDGE ARNOLD: Okay. Do you have any
13 calculations or data to indicate that adding igniters
14 can lead to more severe hydrogen conditions?

15 MR. ZELLER: I just described to you in my
16 conversation with Mr. Gundersen the possibility of the
17 flame propagating back into the reactor core -- into
18 the integrated water --

19 (Simultaneous speaking.)

20 JUDGE ARNOLD: IRWST. Okay.

21 MR. ZELLER: That's what I meant.

22 JUDGE ARNOLD: Which, in itself, has
23 igniters inside that tank.

24 MR. ZELLER: Right.

25 JUDGE ARNOLD: Okay. On page six and

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1 seven of your petition, you emphasize the time that
2 elapses between the licensee discovering the hydrogen
3 problem and the licensee initiating a license
4 amendment to correct that problem.

5 To your knowledge, was there any other
6 notification to the NRC of the issue prior to the
7 submittal of the license amendment request?

8 MR. ZELLER: Not that I'm aware of.

9 JUDGE ARNOLD: Okay. Do these sites have
10 a regulation requiring the licensee to notify the NRC
11 staff of this hydrogen issue at a time sooner than the
12 issuance of the LAR?

13 MR. ZELLER: I'm sorry, repeat the
14 question?

15 JUDGE ARNOLD: Can you cite to any
16 regulation requiring licensee to have notified the NRC
17 sooner than they did?

18 MR. ZELLER: No, I cannot.

19 JUDGE ARNOLD: Okay. Contention 1 states,
20 quote, "the proposed modification by the Southern
21 Company creates an extremely dangerous situation
22 rather than mitigating it," which makes me think that
23 you are opposed to a license amendment that makes
24 things less safe, and I can understand that.

25 But can you cite to a rule stating that

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1 all proposed license amendments must improve safety,
2 or at least are required to not reduce safety?

3 MR. ZELLER: Is there a rule requiring it
4 to be -- that it not be less safe? Is that the
5 question?

6 JUDGE ARNOLD: Yes, yes.

7 MR. ZELLER: The analysis, 59, it calls
8 for additional determinations and 50.59 analysis,
9 50.59 like screening evaluation which is called for in
10 the Interim Staff Guidance that I pointed out before.
11 That is the basis for our contention.

12 JUDGE ARNOLD: On page eight of the
13 petition, regarding Contention 1, you state, quote,
14 "relying on an engineering judgment instead of
15 rigorous testing and analysis would result in an
16 unanalyzed condition that significantly compromises
17 plant safety."

18 Can you tell me, in what way is the method
19 of locating the additional igniters inconsistent with
20 the methodology to locate the original igniters?

21 MR. ZELLER: The flame propagation
22 occurring within the reactor containment is what needs
23 to be analyzed with respect to the additional hydrogen
24 igniters, which Southern Company says are necessary
25 based on the scenario which is plant damage exceeding

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1 safe levels.

2 JUDGE ARNOLD: In the middle of page nine,
3 you state, quote, "experience in Japan is illustrative
4 of the unanticipated problems that have been created
5 by the LAR placing hydrogen igniters near a source of
6 hydrogen based simply on engineering judgment and not
7 a root cause analysis determination."

8 Now, can you explain to us what ignition
9 sources caused the hydrogen combustions at Fukushima?
10 Because, to my knowledge, they're still not
11 identified. And how would analysis of their locations
12 have prevented the hydrogen combustion events at
13 Fukushima?

14 MR. ZELLER: Well, with all due respect,
15 I believe that the analysis of Fukushima is not a part
16 of this proceeding, because that is a separate issue.

17 JUDGE ARNOLD: Well, I agree, it's not.

18 MR. ZELLER: We would be happy to talk
19 further about that, but it's brought up only in this
20 context to point out the serious nature of the damage
21 which could occur to the containment structure if this
22 is not done properly.

23 Our contention is that it has not been
24 done properly. It is not supported by any kind of
25 evidence by Southern Company, which is coming hat in

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1 hand for a license amendment.

2 They have identified the problem. And
3 what we are seeking to do is to make sure that their
4 solution does not add to the problem, or, in fact,
5 worse, create the very scenario which they seek to
6 avoid.

7 By not paying attention to the serious
8 matters of stratification, hydrolysis and sources of
9 hydrogen, the actual mixtures of chemicals -- of
10 atmospheric compounds which would be hydrogen and
11 oxygen and other compounds brought about by the
12 dissociation of the molecule and a serious reactor
13 accident where this zirconium cladding is separated
14 from the fuel bundles.

15 So, we are talking about a serious
16 accident. We are talking about an unanalyzed
17 situation here in terms of the addition and the need
18 for these two additional hydrogen igniters. It's all
19 about plant safety.

20 JUDGE ARNOLD: Okay. On page ten of your
21 Petition concerning contention one, you state, quote,
22 the company has not done the prudent and required
23 evaluation. And you list four evaluations: the
24 applicability determination; safety-security
25 interface; a construction impact evaluation; and a 10

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1 CFR 50.59-like screening.

2 Now, since you call them required
3 evaluations, can you tell me exactly what document
4 requires those evaluations?

5 MR. ZELLER: That's in the federal
6 regulations.

7 JUDGE ARNOLD: Well, I -- well, I looked
8 through the hydrogen requirements under the license
9 amendment requirements and I did not see that listed
10 evaluations. So, if you could be more specific?

11 MR. ZELLER: The Interim Staff Guidance,
12 COL-ISG-025 which is used to determine questions
13 during construction of plants licensed under Part 52.
14 This is part of the regulatory guidance and it points
15 to federal regulations like 50.59 for a screening
16 evaluation.

17 JUDGE ARNOLD: The statement of contention
18 two on page ten of the Petition is, the engineering
19 and support of the proposed modification fails to
20 evaluate the historical precedent of hydrogen
21 explosions as a significant contributor to atomic
22 reactor risk.

23 Can you point me to a requirement that an
24 LAR include an evaluation of related historical
25 events?

1 MR. ZELLER: Well, in Metropolitan Edison
2 for Three Mile Island Commission decision COI-80-16,
3 the Commission held that, in view of the fact that
4 Three Mile Island Nuclear Station accident resulted in
5 generation of hydrogen gas in excess of hydrogen
6 design basis assumptions that hydrogen gas control
7 could properly be litigated under Part 100.

8 JUDGE ARNOLD: Okay. But, that doesn't
9 sound to me like a specific requirement that a
10 historical events evaluation be included in an LAR.

11 MR. ZELLER: No, it's an analogous
12 situation, in answer to your question.

13 JUDGE ARNOLD: Okay. On the top of page
14 11 concerning contention two, you state, quote, rather
15 than performing a rigorous gaseous diffusion and flame
16 propagation analysis, the company chose to place two
17 hydrogen igniters in a likely area by relying upon the
18 personal engineering judgment of its engineers.

19 To your knowledge, has any licensee so far
20 used a rigorous gaseous diffusion and flame
21 propagation analysis to locate igniters?

22 MR. ZELLER: I am unaware of any other
23 nuclear power station which has reached this juncture.
24 So, I understand we may have perhaps gored the
25 engineer's ox by talking -- raising the issues in the

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1 way we did. But, engineering judgment is no
2 substitute for analysis.

3 I think Mr. Gundersen is quite right about
4 that.

5 JUDGE ARNOLD: But certainly with new
6 construction, they haven't reached this point. But
7 there are other plants with igniters and I'm just
8 trying to find out if gaseous diffusion and flame
9 propagation analysis is a typical method that has been
10 used to locate the igniters.

11 MR. ZELLER: We are staying within the
12 bounds of the license amendment request. We, like I
13 said, we are studiously avoiding being cornered and
14 having to talk about things which are generic issues
15 having to do with Westinghouse AP1000, having to do
16 with rules of which are under Part 52, Part 50 or Part
17 51.

18 But, we believe that, when we get into --
19 if and when we are permitted to get to the evidentiary
20 stage, all this will become plain and would be spelled
21 out.

22 JUDGE ARNOLD: Okay. I have a question or
23 two concerning Mr. Gundersen's declaration.

24 In paragraph 14 on page four of 16, Mr.
25 Gundersen states, in violation of its license and the

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1 known containment flaws shown to the world by the 2011
2 Fukushima Daiichi triple meltdown, the Southern
3 Company belatedly notified the NRC that critical
4 atomic reactor safety features supposedly designed
5 specifically for the AP1000 containment have a design
6 that remains fluid and incomplete.

7 Now, you've said that in violation of its
8 license. And, what exactly is that violation of the
9 license that he is referring to?

10 MR. ZELLER: You're reading from Mr.
11 Gundersen's CV?

12 JUDGE ARNOLD: From his declaration that
13 you submitted with the Petition.

14 MR. ZELLER: Right. This license has a
15 cloud over it and maybe you have identified that cloud
16 in that it was -- there was a dissenting opinion with
17 the issuance of the license. That's not a matter for
18 us to decide here today or to explain. It is simply
19 there.

20 And it does place a cloud over what has
21 been done and what is being done at Plant Vogtle Units
22 3 and 4 in Shell Bluff.

23 So, the problem was created by others, not
24 by Blue Ridge Environmental Defense League in terms of
25 the -- whether or not the questions -- unresolved

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1 questions were a part of the license for Units 3 and
2 4.

3 JUDGE ARNOLD: Right.

4 MR. ZELLER: There was wording back in
5 2011 which said that, you know, these things will be
6 taken care of. I believe it was Chairman Jaczko
7 pointed it out in his dissent.

8 And again, we're not trying to raise the
9 issue of the license itself in this proceeding. But
10 the cloud is there and you have exactly identified
11 part of that problem.

12 And again, if allowed to go to further
13 hearing, we would be able to explain that further.

14 JUDGE ARNOLD: You all -- okay, the second
15 part, that sentence also states "known containment
16 laws shown to the world."

17 Okay, these are features that came to
18 light in the Fukushima disaster which was before the
19 license was granted, correct?

20 MR. ZELLER: Yes.

21 JUDGE ARNOLD: So, these are -- if there
22 are containment flaws, then they were deemed
23 acceptable by the Commission in issuing those
24 licenses?

25 MR. ZELLER: Is there a question? I'm

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1 sorry.

2 JUDGE ARNOLD: Okay. I'm just trying to
3 understand that the time pattern. Let me just skip
4 ahead.

5 Paragraph 30 on page 11 of 16, Mr.
6 Gundersen states, it is well-known that the AP1000
7 containment was flawed well before the disaster at
8 Fukushima Daiichi.

9 Now, my understanding is that the COL was
10 issued on February 10th, 2012, whereas Fukushima
11 occurred on March 11th, 2011.

12 So --

13 MR. ZELLER: Of course, the Design Control
14 Document was in process, that's why we refer to the
15 Advisory Committee on Reactor Safeguards meetings
16 which happened in 2010 at which, I believe, Mr.
17 Gundersen participated and we were parties to in
18 pointing out the chimney effect in the design.

19 So, again, that's not a matter for this
20 panel or in this proceeding, however, those issues
21 were brought up, yes, before that.

22 JUDGE ARNOLD: Okay. I'm done with my
23 questions.

24 JUDGE TRIKOUROS: All right, I'll go
25 quick. I'll go very quickly as I can and try not to

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1 cover areas that have been covered.

2 We've determined that the new threat is
3 the ADS Stage 4 partial failure scenario that was
4 identified. And so, that's a -- so we can move
5 forward from there.

6 The NUREG-1793, the NRC Safety
7 Evaluations, Exhibit 1 of the Southern Nuclear filing,
8 indicates that the igniters have been placed in the
9 major regions of the containment where hydrogen may be
10 released through which it may flow or where it may
11 accumulate.

12 Do you disagree with that statement? Do
13 you think that that statement causes a problem if
14 followed in the igniter placement?

15 MR. ZELLER: Where they may be released or
16 may accumulate, that is difficult to dispute. But
17 that is not the -- I don't understand your question.
18 I'm sorry.

19 JUDGE TRIKOUROS: Well, you agree that if
20 you're going to place igniters they ought to be where
21 hydrogen is released, where it may flow, or where it
22 may accumulate. Do you have any problem with that?

23 MR. ZELLER: No, that's the basic idea.

24 JUDGE TRIKOUROS: Okay. So, that is
25 somewhat contrary to your Petition. But, I'm not

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1 going to go there now.

2 All right. There's a -- on page nine of
3 the Petition, there's a discussion regarding a root
4 cause analysis determination. You indicate that
5 specifically, placing hydrogen igniters near a source
6 of hydrogen based simply on engineering judgment and
7 not a root cause analysis determination is a problem.
8 And you actually say that problem came out of the
9 experience with Fukushima.

10 But, again, I don't want to address that
11 right now.

12 What -- a root cause analysis, typically,
13 something happens and you do analysis to try and
14 understand why it happened and how it happened. I
15 don't understand how a root cause analysis would help
16 in the placement of hydrogen igniters. And perhaps
17 that's one the analyses that you were talking about
18 before. I don't know.

19 MR. ZELLER: A root cause analysis is
20 certainly a higher level of determination in this case
21 than an engineering judgment, of course.

22 JUDGE TRIKOUROS: Well, I --

23 MR. ZELLER: That was one --

24 JUDGE TRIKOUROS: I don't understand what
25 -- how one does a root cause analysis in this context

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1 and how it might help with hydrogen placement --
2 hydrogen igniter placement. I'm just looking to
3 understand that better, that's all.

4 MR. ZELLER: I get the problem here, you
5 know, that I see or maybe the understanding that could
6 be made clearer is that Southern Company has come
7 forward with an identified problem and we agree that
8 there is a problem here.

9 The solution is one which should relieve
10 the problem and not cause additional problems. Any
11 engineering question from building a bridge to
12 building an automobile introduces trade-offs.

13 So, whether the hydrogen igniters should
14 be located here or six inches further over in this
15 direction is not sufficient to say, well, let's put it
16 here because the rules say we just need to be near the
17 hydrogen source and then just let the devil take the
18 hindmost.

19 You've got to figure out where that should
20 go, and in our interests and the interests of our
21 members in Shell Bluff is that it be done properly
22 because two reactors next to two more reactors
23 presents even greater threat.

24 So, I believe we're all on the same page
25 and wanting the same thing in that the license

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1 amendment would be done and two additional igniters
2 would be added in a supportable position within the
3 reactor containment, something which would actually do
4 what it's designed, or that we hope it would do which
5 would be to prevent excessive levels of hydrogen
6 within the containment.

7 JUDGE TRIKOUROS: All right, okay. Let me
8 go on because we are -- we have a number of things to
9 cover.

10 You indicate in your Petition that a gross
11 containment failure from a detonation shockwave in a
12 sub-compartment is likely to occur because the
13 hydrogen igniter modification is poorly designed.

14 MR. ZELLER: Yes.

15 JUDGE TRIKOUROS: It's not clear to me
16 what that statement means, specifically in terms of
17 mechanism.

18 But is that true only of these two new
19 igniters or is that a general statement regarding all
20 the hydrogen igniters in the plant?

21 MR. ZELLER: It has to do with these two
22 igniters.

23 JUDGE TRIKOUROS: There's something unique
24 about these two igniters that would cause a failure --
25 a gross failure of the containment in a like -- that

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1 it's likely? Can you enlighten me on that?

2 MR. ZELLER: Yes, they are not part of the
3 Design Control Document. They are not a part of the
4 present engineering of the plant.

5 And therefore, they are an unknown factor.
6 And to simply take a guess as to where they might go
7 which simply complies with where the hydrogen is,
8 because the hydrogen is everywhere.

9 The hydrogen igniter needs to be in a
10 place where the hydrogen reaches a certain point where
11 it can be ignited but not exploded.

12 I mean, the ignition level is here, the
13 explosion level is here. So, you want to be sure that
14 the igniter ignites here, not causing the explosion
15 which would happen at this level.

16 So, the mixture of hydrogen with oxygen
17 and other compounds in the atmosphere of the reactor
18 containment is a critical factor. That analysis needs
19 to be done in light of the need identified by Southern
20 Company themselves.

21 JUDGE TRIKOUROS: And, you perceived
22 something different from the other four igniters that
23 are located on the adjacent vents?

24 MR. ZELLER: My engineers did.

25 JUDGE TRIKOUROS: Okay, I understand that

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1 you perceived a difference. Now, I still don't
2 understand what that difference is.

3 MR. ZELLER: We would hope to present that
4 information to you, Your Honor.

5 The contention admissibility is where I
6 believe the crux of the argument is today, not
7 evidentiary hearings. We would be prepared for an
8 evidentiary hearing as soon as this Board deems it
9 proper.

10 JUDGE TRIKOUROS: All right. Let's go on.

11 There's a pathway of flame propagation
12 that's been identified, I think it's on -- in the
13 Petition somewhere, I think it's page 12 to 13, you
14 say, Southern Nuclear's analysis ignores the
15 possibility that the igniter can create a flame that
16 blows back through -- we talked about this -- through
17 the IRWST, along the steam generator doghouse, et
18 cetera. Is the concern there -- I don't understand
19 the pathway, number one.

20 You're going into the IRWST and then what?
21 Would it come out of the IRWST at some other point and
22 then detonate on the doghouse wall?

23 I don't quite understand that mechanism
24 given that there are igniters everywhere at inlets and
25 outlets. So, I don't understand that particular

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1 pathway.

2 I could understand it if you said that it
3 might damage the IRWST. Is that part of this?

4 MR. ZELLER: It could damage, yes, of
5 course, the water tank.

6 JUDGE TRIKOUROS: All right. But that
7 would only be -- that blow back would only be true of
8 the two new igniters, not the four existing igniters
9 at basically the same location?

10 MR. ZELLER: That's the question before
11 us, it has to do with the two additional igniters.
12 We're not going to question the Design Control
13 Document in the placement of the original 64, we've
14 said that more than once.

15 JUDGE TRIKOUROS: All right. You had
16 referenced 10 CFR 52.98(f) -- I don't think this
17 question was asked. You had indicated that the
18 applicant did not comply with -- or that specifically,
19 the granting of the company's license amendment
20 request didn't comply with 10 CFR 52.98(f).

21 Basically, 52.98(f) just says that there'd
22 be an opportunity for a hearing. In this regard,
23 we're in the middle of that right now. I don't
24 understand where the noncompliance is.

25 MR. ZELLER: Okay, I'm not sure I'm

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1 hearing you right. You said 50 --

2 JUDGE TRIKOUROS: 52.98(f) is what you
3 quote. I'll read it to you.

4 Any modification to, addition to, or
5 deletion from the terms and conditions of a combined
6 license, including any modification to, addition to,
7 or deletion from the inspection, tests, analyses or
8 related acceptance criteria contained in the license
9 is a proposed amendment to the license. There must be
10 an opportunity for hearing on the amendment.

11 All of that has happened. I don't
12 understand the -- why you say there's no compliance
13 with that.

14 MR. ZELLER: That's in the case that the
15 license amendment were to be approved, which it has
16 not yet. So, that is the pitfall we're trying to
17 avoid here.

18 JUDGE TRIKOUROS: Okay. Let me go on.

19 MR. ZELLER: Correct, we are in the middle
20 of that.

21 JUDGE TRIKOUROS: So, as I understand it
22 then, you are not challenging the general use of
23 igniters, only the specific two igniters?

24 MR. ZELLER: Correct.

25 JUDGE TRIKOUROS: When you say that the

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1 containment will fail from this deflagration -- or
2 detonation that will come only from these two
3 igniters, are you saying -- are you evaluating that on
4 the basis of design pressure or on the basis of the
5 higher ASME service level pressures, like service
6 level C pressure that's typically used for PRAs and
7 severe accidents?

8 MR. ZELLER: Yes, the containment
9 structure in the design as, at maximum, is very close
10 to the limit for the containment structure in terms of
11 the pressure within the reactor vessel. And we have
12 outlined that in our Petition.

13 Containment failure deflagration by two
14 additional igniters could push it over the edge. Yes,
15 that is our contention.

16 JUDGE TRIKOUROS: Well, I don't think I
17 heard the answer.

18 In your analysis of this failure of
19 containment, are you assuming a service level C
20 pressure or a design pressure?

21 MR. ZELLER: That's a question I'd like to
22 refer to my engineer. But the basic premise is that
23 the pressure within the reactor is already very close
24 to the limit and the addition of an unaccounted for or
25 an unanalyzed condition, which this is, could push the

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1 containment structure past its design. And that's
2 reflected, again, in the -- in Southern Company's
3 license amendment request.

4 JUDGE TRIKOUROS: The reason I'm asking
5 you the question, just for -- to be clear, that design
6 pressure is not the point of failure. The failure
7 point is higher levels of pressure that are used in
8 severe accidents. They're typically double the design
9 pressure.

10 So, I just want to make sure that you're
11 aware of that. You know, when you say it's going to
12 break, if you're telling me it's going to break
13 because it hits its design pressure, then that's
14 different if than if you're telling me it's going to
15 break because it achieved levels of pressure
16 associated with ASME higher level C or D.

17 MR. ZELLER: It is my understanding that
18 the containment is put at risk by this unaccounted for
19 and unanalyzed condition. In my understanding of it,
20 after having talked to the experts in this area, some
21 of the particulars you mention I think would bear
22 further explanation, certainly, in order to satisfy
23 that question. But that is my understanding and
24 that's the basis on which we are moving forward.

25 JUDGE TRIKOUROS: Right, thank you.

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1 All right, I don't have any other
2 questions.

3 CHAIRMAN SPRITZER: Just one more and then
4 we'll take a break for everybody's benefit.

5 The license amendment request states that
6 the scenario addressed by the proposed amendment is,
7 I'll starting quoting here, too complex to be
8 accurately modeled by either quantitatively confirm
9 the need for additional igniters or confirm that the
10 current design could control the local hydrogen
11 releases from the roof vents. This is the license
12 amendment request at four.

13 Does BREDL dispute this conclusion?

14 MR. ZELLER: Yes.

15 CHAIRMAN SPRITZER: On what basis?

16 MR. ZELLER: An analysis could be done.
17 I have been told that the -- a modeling could indeed
18 be done.

19 CHAIRMAN SPRITZER: By who? Who told you
20 that?

21 MR. ZELLER: Mr. Gundersen.

22 CHAIRMAN SPRITZER: All right. And,
23 you're saying we can look at his declaration and it
24 will explain to us what kind of modeling he thinks
25 could be done and why he disagrees with the company's

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1 position that it wouldn't be of any benefit?

2 MR. ZELLER: It's in the declaration.

3 CHAIRMAN SPRITZER: Yes.

4 MR. ZELLER: I just talked to him five
5 minutes ago.

6 CHAIRMAN SPRITZER: No, but I'm asking, I
7 mean, what we've got to base our decision on about
8 contention admissibility is what's in his declaration
9 or something else that you pointed to that's either
10 expert or factual support.

11 If there's something you can point me to
12 in what you've provided, either in his declaration or
13 any other support you provided, that would -- that
14 does, in fact, take issue with this statement in the
15 LAR that I just read to you.

16 MR. ZELLER: Okay. So, the evidence is
17 what you're asking for?

18 CHAIRMAN SPRITZER: The support, right.
19 The support that's necessary, at this stage of the
20 case, the support necessary to prove that you're
21 correct, at least some support for your -- to show
22 that there is a dispute with this statement in the
23 LAR.

24 MR. ZELLER: There is a dispute and so, we
25 believe that is part of the nature of admissibility of

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1 this contention. So, there is modeling which could be
2 done by someone. Not Southern Nuclear, if they have
3 elected not to do it, if they just haven't found the
4 people to do it, but our expert believes that modeling
5 could be done of that complicated space. And that's
6 our position.

7 JUDGE TRIKOUROS: I want to repeat again,
8 the purpose of that modeling that they say was too
9 complex was to determine if the two igniters 30 feet
10 above the IRWST roof vents would be sufficient.

11 They determined, since we could not model
12 it, to answer that question, we are adding two
13 additional hydrogen igniters at the release point.

14 That was the purpose of the analysis that
15 would have been used. That is the purpose for which
16 that analysis would have been used.

17 So, they went conservative on this and
18 added two new igniters.

19 Now, so, I still don't understand the
20 analysis that Mr. Gundersen is referring to. We never
21 did get that cleared up in this hearing so far, or in
22 this oral argument so far.

23 CHAIRMAN SPRITZER: All right, well, maybe
24 you can address that in rebuttal.

25 We're already past 11:00, so we've gone

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1 from a half hour for your presentation to an hour and
2 a half.

3 So, we need to move on at this point.
4 Let's take a ten minute break, come back within ten
5 minutes and get started with Southern Nuclear.

6 MR. ZELLER: All right, thank you.

7 (Whereupon, the above-entitled matter went
8 off the record at 11:06 a.m. and resumed at 11:22
9 a.m.)

10 CHAIRMAN SPRITZER: All right, Mr. Zeller
11 appears to be back with us at least. So, why don't we
12 go ahead and let's hear from Southern Nuclear.

13 MS. RONNLUND: Good morning, again, Your
14 Honors.

15 As we have previously discussed, this
16 proceeding involves Southern Nuclear's request for a
17 license amendment. In particular, this license
18 amendment request, the addition of two additional
19 hydrogen igniters in-containment. That's two
20 additional igniters in addition to the 64 which were
21 already placed in-containment in accordance with the
22 AP1000-certified design.

23 And, we've been thinking we'd discuss the
24 AP1000-certified design was certified by the Nuclear
25 Regulatory Commission in 2011.

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1 The COL relied on the design certification
2 and all of the applicable technical information in the
3 Vogtle COL to align the hydrogen control system was
4 referenced from the design certification.

5 The applicable standard for issuance of a
6 license amendment request is found in 10 CFR 50.98 and
7 that is that the considerations that govern the
8 issuance of the initial license also governs the
9 issuance of license amendment requests to the extent
10 that they're applicable and appropriate.

11 In this case, the regulatory standard at
12 issue is criterion 41 in 10 CFR 50.44.

13 This proceeding, as Your Honors discussed
14 earlier, involves the contention admissibility and
15 standing with regard to BREDL's petition challenging
16 the referenced license amendment.

17 The substantive issue here is whether
18 BREDL has shown it does have standing in accordance
19 with 2.309(d) and whether BREDL has offered an
20 admissible contention in accordance with 2.309(f).
21 It's Southern Nuclear's position that BREDL has
22 satisfied neither requirement.

23 At a fundamental level, both contentions
24 one and two are inadmissible because BREDL has not
25 offered any challenge to the fact that Southern

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1 Nuclear is locating these two additional igniters
2 explicitly consistent with the certified design
3 criteria for igniter location.

4 In particular, those criterion in the
5 certified design were why the igniters be located as
6 close to the source of hydrogen as reasonably feasible
7 and, in particular, where the source of hydrogen can
8 be defined such as in the IRWST vents.

9 Southern Nuclear is citing these two
10 additional reactors in compliance with those criteria.
11 Because BREDL has not challenged in any way that
12 Southern Nuclear is complying with those criteria, the
13 contention is an impermissible challenge to certified
14 design and is inadmissible.

15 Their contentions one and two include
16 statements that are otherwise challenges to the AP1000
17 design.

18 By way of background, I'd like to give a
19 brief overview of the analysis that was performed in
20 the AP1000 that is the basis for this license
21 amendment request.

22 The AP1000 design included a hydrogen
23 analysis showing uniform concentration below ten
24 percent and shown structural integrity in accordance
25 with 10 CFR 50.44.

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1 The NRC reviewed these analyses and
2 concluded that, based on the existing 64 igniters, the
3 hydrogen control system in the AP1000 DCD and that
4 applicable requirement.

5 Southern Nuclear is not proposing to
6 change anything underlying these analysis in the
7 license amendment request.

8 In addition, BREDL's challenge did not set
9 the hydrogen analysis by arguing that additional
10 consideration should have been included such as
11 additional sources of hydrogen other than 100 percent
12 fuel clad metal-water reaction accident.

13 This is a challenge to the requirement of
14 50.44 and thereby also inadmissible in this
15 proceeding.

16 The other basis for BREDL's two
17 contentions appears to be referenced to the Fukushima
18 accident.

19 While the Petition appeared initially to
20 present the claim that the events at Fukushima were
21 the basis for the challenge to the license amendment
22 request, we understand that he's already clarified
23 this morning that BREDL's position is simply that the
24 Fukushima event illustrates the unpredictability of
25 hydrogen behavior.

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1 The Fukushima event has been considered by
2 the Nuclear Regulatory Commission, in particular,
3 considered whether the hydrogen aspect of that event
4 should change the AP1000 design certification or the
5 COL.

6 The Commission's various proceedings
7 including design certification amendment proceedings
8 rulemaking, this COL proceeding and the generic
9 considerations of the task force report has concluded
10 that there is no change necessary to hydrogen control
11 requirements to the AP1000 DCD.

12 BREDL's contention regarding Fukushima
13 events are simply without merit and do not warrant the
14 basis for admissible contentions.

15 In addition to these flaws, which
16 primarily include challenges that are outside the
17 scope of this proceeding, BREDL has also failed to
18 accurately support this contention and articulate a
19 genuine dispute for the license amendment request.

20 The license amendment request clearly
21 states that Southern Nuclear determined that the
22 additional igniters were consistent with the existing
23 hydrogen igniter location and clearly states that
24 Southern Nuclear considered the addition of the
25 original analysis to determine that no additional

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1 analysis was necessary because those original analysis
2 were unchanged.

3 This is consistent with the staff finding
4 in the AP1000 design certification amendment final
5 safety evaluation report, where the staff concluded
6 that igniters located consistent criteria did not
7 affect the underlying hydrogen analysis.

8 Therefore, since BREDL had failed to
9 articulate why these statements in the license
10 amendment request said no change to the underlying
11 analysis being made are incorrect. BREDL has failed
12 to articulated a dispute with the license amendment
13 request.

14 And further being, the crux of the matter
15 is the design certification tells Southern Nuclear
16 where hydrogen igniters ought to be located based on
17 thorough analysis that was approved by the NRC.

18 Southern Nuclear, following this criterion
19 in the addition of these two igniters and BREDL's
20 offered no challenge to those statements.

21 Therefore, the contentions one and two are
22 based uneventful.

23 Finally, with regard to standing, Southern
24 Nuclear's position has been BREDL has failed to
25 articulate an obvious potential for offsite

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1 consequences with respect to this license amendment
2 request or articulate their traditional standing
3 elements and, therefore, is not entitled to standing
4 in this proceeding.

5 Thank you.

6 JUDGE ARNOLD: Okay, I'll start out.

7 On page eight of the Petition regarding
8 contention one concerning locating the additional
9 igniters, Petitioner states, quote, relying on its
10 engineering judgment instead of rigorous testing and
11 analysis would result in an unanalyzed condition that
12 significantly compromises plant safety.

13 My question, is the method of locating the
14 two additional igniters consistent with the
15 methodology used for locating the original igniters?

16 MS. RONNLUND: Yes.

17 JUDGE ARNOLD: Okay. And did that involve
18 any gaseous diffusion or flame propagation
19 calculations?

20 MS. RONNLUND: The original analysis in
21 the AP1000 DCD included a flame propagation analysis.
22 However, that analysis was limited to igniters located
23 near walls because the issue being interoperator of
24 the thermal load on a wall.

25 In this case, since the igniters are

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1 proposed to be located on the IRWST vents, nowhere
2 near any walls where a special issue would be
3 relevant, there is no effect on the original flame
4 propagation out load.

5 JUDGE ARNOLD: And, let's see, so, the
6 methodology for locating igniters, the original set of
7 igniters, that was all reviewed and approved by the
8 NRC?

9 MS. RONNLUND: Yes.

10 JUDGE ARNOLD: And, you did nothing
11 inconsistent with that?

12 MS. RONNLUND: Yes, that's correct.

13 JUDGE ARNOLD: The statement of contention
14 two on page ten of the Petition is, quote, the
15 engineering and support of the proposed modification
16 fails to evaluate historical precedence of hydrogen
17 explosions as a significant contributor to atomic
18 reactor risk.

19 Can you tell me if historical hydrogen
20 events have any direct application when determining
21 the location of igniters?

22 MS. RONNLUND: If I need to, I may confer
23 with our subject matter expert. I think I can answer
24 your question at this point.

25 No, historical events uniquely would not

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1 have a direct effect on igniter locations. The
2 Commission considered historical events and lessons
3 learned and developed rules for hydrogen control. And
4 those rules are embodied in General Design Criteria
5 41 and in the 10 CFR 50.4.

6 And those rules then were followed by
7 Westinghouse on the AP1000 DCD and our analysis was
8 approved.

9 So, there's no unique requirement or
10 additional requirement that a particular historical
11 events be analyzed. The rule is what determines how
12 the analysis is performed.

13 JUDGE ARNOLD: Are you aware of any
14 requirements to consider historical events when
15 submitting a license amendment request?

16 MS. RONNLUND: I am not, Your Honor.

17 JUDGE ARNOLD: On page two of your answer
18 to the Petition, you state, quote, in certifying the
19 AP1000 design, the NRC reviewed and approved the
20 hydrogen igniter location criteria and the underlying
21 hydrogen analysis.

22 So, is it correct that the ignition --
23 igniter location criteria are part of the DCD and it
24 -- and they received approval from the NRC?

25 MS. RONNLUND: Yes.

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1 JUDGE ARNOLD: Okay. And, on page ten of
2 the Petition, Petitioners asserted that there is a
3 requirement for four analyses: the applicability
4 determination evaluation; a safety-security interface
5 evaluation; a construction impact evaluation; and a 10
6 CFR 50.59-like screening.

7 Do the igniter location criteria include
8 any of these requirements?

9 MS. RONNLUND: No, they do not.

10 JUDGE ARNOLD: Are you aware of any
11 document that makes these four items a requirement for
12 your license amendment?

13 MS. RONNLUND: No, these issues are
14 actually set out in -- hold on one minute, Your Honor,
15 let me just check my notes.

16 Excuse me, Your Honor, yes, I just wanted
17 to make sure I was clear when I answered that.

18 Before a LAR is submitted, in order to
19 determine whether a license amendment is necessary, a
20 50.59 evaluation, actually, in this case, it would be
21 an evaluation under Appendix B of Part 52.

22 But the 50.59-like evaluation must be
23 performed and then, if it's determined a LAR is
24 necessary, one would be submitted.

25 So, to that extent, that requirement does

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1 exist and was followed here because we, in fact, have
2 submitted a license amendment request.

3 The other issues are not requirements for
4 license amendment requests.

5 JUDGE ARNOLD: The Petitioners are basing
6 their standing upon an obvious potential for offsite
7 consequences.

8 My question, can simply adding an
9 additional igniter, even if it's done randomly,
10 increase the potential or severity for a release of
11 radioactive material from the containment during an
12 accident?

13 MS. RONNLUND: No, this is directly
14 contrary to the Commission findings in the AP1000 DCD
15 which clearly states that igniters are used to limit
16 hydrogen concentrations.

17 JUDGE ARNOLD: Okay. Your answer on page
18 30, you say that the accident scenario in which the
19 additional igniters may come into play has the
20 frequency of 5.8 times 10^8 per reactor year. Is that
21 correct?

22 MS. RONNLUND: Yes.

23 JUDGE ARNOLD: So, basically, this is
24 saying that you would expect these new igniters to
25 have some effect approximately 5.8 times 10 to the

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1 negative 8 times per reactor year?

2 MS. RONNLUND: Actually, it's not even
3 that high of a probability. That probability is for
4 the scenario to even occur where hydrogen igniters
5 could be ignited.

6 So, the use of these igniters would
7 actually be some degree less.

8 JUDGE ARNOLD: Even less, okay.

9 And, have you found any other
10 circumstances under which the additional igniters
11 might affect safety?

12 MS. RONNLUND: No.

13 JUDGE ARNOLD: On page ten of your answer,
14 this is the table in the DCD about locating the
15 igniters.

16 Now, apparently, the DCD specifically
17 directs that the IRWST vents would be a good place for
18 igniters. But, for some reason, the initial set of
19 igniters did not include that exact location?

20 MS. RONNLUND: There were igniters at some
21 of the IRWST vents, but not these particular vents.

22 JUDGE ARNOLD: Okay. So, now you're
23 basically making the actual igniter design closer to
24 what is recommended in the DCD?

25 MS. RONNLUND: Yes.

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1 JUDGE ARNOLD: Okay. Is there anything
2 that the Petitioner said that you would like to
3 comment on?

4 MS. RONNLUND: Can you give me just one
5 moment to glance through my notes before I speak?

6 JUDGE ARNOLD: Of course.

7 MS. RONNLUND: Your Honor, I see several
8 comments, but it's not really to the questioning, we
9 have already clarified these issues and we have no
10 further comments at this time.

11 CHAIRMAN SPRITZER: Let me just follow up
12 on one of your, I guess, your next to last answer.
13 Maybe I didn't understand it correctly.

14 Did you say that you're actually putting
15 the igniters closer to the source of the hydrogen than
16 is required or recommended by the DCD? Or, did I
17 misunderstand you?

18 MS. RONNLUND: No, I think what I was
19 trying to explain is that there are multiple vents in
20 the IRWST and there were igniters in the original
21 design located at some of those vents. But the two in
22 question did not have igniters.

23 So, Southern Nuclear is simply requesting
24 consistent with the design certification criteria to
25 add igniters to those particular, which makes it

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1 consistent with the criteria.

2 CHAIRMAN SPRITZER: If I understand, and
3 this is my understanding of the Petitioner's argument
4 and you can tell me if you understand it differently,
5 but they're basically saying, yes, the DCD says put
6 the new igniters or any igniter as close to the source
7 of hydrogen as feasible.

8 But all that the LAR says is, well, we
9 determined based on engineer judgment that we complied
10 with that. And they want some more rigorous or
11 quantitative, I guess, would be the right term,
12 analysis in that.

13 Tell me what's wrong with their argument,
14 assuming I've interpreted it correctly?

15 MS. RONNLUND: Well, I think that my first
16 clarification would be that argument is how Mr. Zeller
17 presented BREDL's position this morning. But that
18 does not appear to be the argument that was made in
19 BREDL's initial Petition or in the declaration of Mr.
20 Gundersen.

21 But with that clarification in mind, there
22 are two things -- two issues Southern Nuclear would
23 like to raise.

24 First is that the license amendment
25 request is in the context of the existing licensing

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1 basis. And so the design certification and analyses
2 as well, include a description of the other igniters,
3 particularly in discussion about the IRWST which
4 explains there are igniters located in the IRWST but
5 there's potential for that to be inert such as the
6 igniters wouldn't ignite.

7 And so, the scenario here was, you already
8 have hydrogen flowing the IRWST that's not already
9 ignited by the existing igniters, if that area in the
10 IRWST is inert.

11 And in that case, these igniters would be
12 used. So, Southern Nuclear's conclusion that the
13 igniters are being located as close to the source as
14 reasonably possible is backed up by the existing
15 licensing basis and doesn't require additional
16 analysis for that LAR certification.

17 In addition to that, Southern Nuclear also
18 would like to clarify that the criteria in the DCD
19 does not state that historical hydrogen must be found
20 to be exactly precise.

21 The criteria only say igniters should be
22 located close to the source where hydrogen may be
23 released, may accumulate, may flow.

24 And so, Southern Nuclear's using
25 engineering judgment to put the igniters as close to

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1 potential flowpath as possible is absolutely
2 consistent with the learning and the intent of the
3 criteria in the DCD.

4 CHAIRMAN SPRITZER: I thought, at least
5 part of your argument was, there's really no
6 quantitative -- further quantitative analysis you
7 could do here that would really help in terms of
8 specifying exactly where the igniters should go.

9 So, we necessarily have to rely on some
10 judgment, some engineering judgment. And, they
11 haven't shown that there is something more we could
12 do.

13 Did I misunderstand your position on that?

14 MS. RONNLUND: That's correct, in addition
15 to what Southern Nuclear's position that the analysis
16 is not required because the existing analysis already
17 support the igniter location.

18 Our position is also that there is no
19 model that is detailed enough that it would provide
20 additional information regarding location of these
21 igniters.

22 CHAIRMAN SPRITZER: One technical
23 question, which revision of the Design Control
24 Document is applicable to Vogtle Units 3 and 4? Is
25 that Revision 19?

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1 MS. RONNLUND: Yes.

2 CHAIRMAN SPRITZER: Okay. And somewhere
3 in your response you provide a citation that would
4 clarify that for us?

5 MS. RONNLUND: Just a moment, Your Honor.

6 It may take me a moment to find that, but
7 the license itself on -- if you look at the combined
8 license, it clearly states the reference rule 10 CFR
9 Part 52 Appendix B. And Appendix B is now Revision 19
10 of the DCD after the amendment.

11 So, I think, if you follow that trail, our
12 reference to Appendix B of Part 52 on page two will
13 point to your Revision 19 of the DCD.

14 CHAIRMAN SPRITZER: Okay.

15 Is there ever a -- I mean, I understand in
16 this case, you're adding two additional igniters, I
17 mean, suppose you were, and this is obviously a
18 hypothetical, but suppose you were doubling the number
19 of igniters.

20 Is there any -- I guess I'm trying to get
21 at, is there any point at which you really do have to
22 go back and redo some of the quantitative analysis
23 that went into the DCD with respect to hydrogen
24 igniters?

25 MS. RONNLUND: I'm going to give an

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1 initial answer. If we go any further, I'll need to
2 discuss with my igniter experts.

3 But in terms of the hydrogen analysis and
4 the 50.44 analysis, I do not believe there is any
5 number of igniters that would change it because the
6 existing 64 were already held in the requirement. And
7 additional igniters, they don't function such that
8 they could undo that.

9 Now, at this juncture, that's as far as
10 I'm comfortable going.

11 CHAIRMAN SPRITZER: All right.

12 JUDGE TRIKOUROS: Okay. We heard earlier
13 that the new threat that's in the Petition, the words
14 new threat, is the ADS Stage 4 partial failure
15 scenario.

16 Is this the only scenario in the PRA world
17 that results in hydrogen in the IRWST?

18 MS. RONNLUND: No, it's not retaining this
19 as a bounding scenario.

20 JUDGE TRIKOUROS: So, there were numerous
21 other scenarios that resulted in hydrogen, but this
22 one results in the most hydrogen?

23 MS. RONNLUND: That is my understanding,
24 yes.

25 JUDGE TRIKOUROS: Okay. So, how did this

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1 new threat lead to the need for the roof vent
2 igniters? Was there a determination made analytically
3 that the four existing igniters were inadequate to
4 handle this design -- this new threat?

5 MS. RONNLUND: So, I think, to begin with,
6 you have to keep in mind that there is an independent
7 requirement in the design certification including any
8 criteria that igniters located close to the source of
9 hydrogen as is feasible.

10 And so, in this case, the analysis or the
11 PRA scenario was discovered. It was determining there
12 is a potential for a hydrogen pathway to be through
13 these vents.

14 And so, because the modeling is not
15 sophisticated enough to confirm that the igniter 30
16 feet above could adequately meet those criteria for
17 igniters located as close as reasonably feasible, the
18 decision was made to conservatively go and add two
19 additional igniters.

20 JUDGE TRIKOUROS: In previous scenarios
21 where hydrogen was released to the IRWST, and given my
22 understanding of the open and closing set points for
23 release for the hooded vents and for the roof vents,
24 the roof vents would basically be where all the
25 hydrogen would be coming out of the IRWST with

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1 potentially none, actually, coming out of the hooded
2 vents for any scenario.

3 Well, specifically, and again, all from
4 the LAR itself, the roof vents are identified as the
5 primary release point for hydrogen from the IRWST.
6 Their relief pressure is half the relief pressure of
7 the hooded vents.

8 Once they open, they stay open. It is
9 entirely conceivable that the hooded vents would never
10 open.

11 And again, it's in the LAR, it's not --
12 although I could reach the same conclusion very
13 easily.

14 So, therefore in any previous hydrogen
15 combustion analysis, mixing and combustion analysis
16 that was done by Westinghouse, there would have been
17 a significant amount of hydrogen coming through those
18 roof vents, not through the hooded vents.

19 But now, as a result of this change, there
20 is a totally different situation in that IRWST. Why
21 wouldn't that require at least a review of the
22 original analysis to make sure that was a main problem
23 with that?

24 MS. RONNLUND: I'd have to -- I'm afraid
25 I lost a little at the end of your question, Your

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1 Honor. You said now as a result of this change, I'm
2 a little confused on that part, can you clarify what
3 this needed change you were referring to was?

4 JUDGE TRIKOUROS: No change. The way the
5 original design was set up, the hooded vents were a
6 backup means, if you will, to release hydrogen because
7 the pressure at which they open is double the pressure
8 at which the roof vents open.

9 When the hooded vents open, they reclose
10 at a somewhat lower pressure. The roof vents, which
11 open significantly earlier, never close once they
12 open.

13 So, not hard to conclude that the roof
14 vents are the primary release point for hydrogen from
15 the IRWST. Yet, they never had igniters.

16 I don't understand that, but, nonetheless,
17 it does alter the hydrogen mixing and combustion
18 analysis because now the hydrogen flow situation has
19 changed.

20 One could argue that it's gotten better in
21 the sense that the primary release point has hydrogen
22 igniters where it didn't before.

23 Has anyone at SNC at least considered
24 that?

25 MS. RONNLUND: Your Honor, may I have a

1 moment to confer with our subject matter experts?

2 JUDGE TRIKOUROS: Yes, thank you.

3 (Pause.)

4 MS. RONNLUND: Thank you for that time,
5 Your Honor, I appreciate it.

6 Yes, Southern Nuclear considered the issue
7 that you are raising. At a high level, the design
8 certification included a full analysis which the NRC
9 reviewed, approved and determined that the ten percent
10 heat up alarms, by volume, hydrogen concentration
11 requirements.

12 And after reviewing the available
13 information that the model can provide, which, again,
14 the space is limited, Southern Nuclear determined that
15 there is no information that would change that
16 original analysis available.

17 JUDGE TRIKOUROS: So, they concluded that
18 the analysis conclusions would still be the same? Is
19 that what I'm hearing?

20 MS. RONNLUND: Yes. Yes, Your Honor.

21 JUDGE TRIKOUROS: But, they did consider
22 the change in the hydrogen flow situation?

23 MS. RONNLUND: Yes, I would like to
24 clarify that that consideration of after the plume was
25 seen in the different model and that issue was

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1 identified, that consideration was done. But this --
2 what's within the scope of this license amendment
3 request, is simply the addition of two igniters.

4 And it's clear that those two igniters do
5 not impact the original analysis. So, Southern
6 Nuclear considered both, I think what you're referring
7 to which is the initial issue and then also the impact
8 of two igniters completely, in neither case would the
9 original analysis be changed.

10 JUDGE TRIKOUROS: So, they did do a review
11 of the original analysis?

12 MS. RONNLUND: Yes.

13 JUDGE TRIKOUROS: They didn't just ignore
14 the original analysis, they did look at it with
15 respect to the change in design circumstances and
16 concluded it would be the same conclusion?

17 MS. RONNLUND: Yes. And, I believe
18 there's a statement in the LAR that indicates the
19 original license analysis is not impacted.

20 JUDGE TRIKOUROS: All right.

21 This modification is only being made to
22 Vogtle?

23 MS. RONNLUND: Right now, the license
24 amendment request at issue only involves Vogtle Units
25 3 and 4.

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1 JUDGE TRIKOUROS: Not in Summer? Is there
2 a LAR for Summer?

3 MS. RONNLUND: I understand, Your Honor,
4 that Summer also has a LAR on this issue.

5 JUDGE TRIKOUROS: Has a what, I'm sorry?

6 MS. RONNLUND: I understand, Your Honor,
7 that Summer also has a license amendment request on
8 this issue.

9 JUDGE TRIKOUROS: Okay. All right. So,
10 both Summer and Vogtle will have this modification
11 installed?

12 MS. RONNLUND: Assuming -- if both license
13 amendment requests are issued, yes.

14 JUDGE TRIKOUROS: All right.

15 In the opinion of Southern Nuclear, can a
16 hydrogen igniter provide a flame blow back to the
17 IRWST and potentially damage it?

18 MS. RONNLUND: No.

19 JUDGE TRIKOUROS: Is there anything
20 different about the two hydrogen igniters that are
21 being discussed here versus the other hydrogen
22 igniters anywhere, in any of the 64?

23 MS. RONNLUND: No, and, in fact, again, it
24 states that the DCD specifically consider igniters and
25 the danger of hydrogen in the IRWST, and those issues

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1 are resolved by using design certification.

2 JUDGE TRIKOUROS: Is there any basis for
3 saying that there's something about these two hydrogen
4 igniters that can be contested without any
5 consideration to the other 64 hydrogen igniters that
6 would not apply to the other 64 hydrogen igniters?

7 MS. RONNLUND: No.

8 JUDGE TRIKOUROS: Can hydrogen igniters
9 cause a back flow into any sub-compartments of
10 containment?

11 MS. RONNLUND: Your Honor, based on the
12 analysis performed, the concentration of hydrogen in
13 containment for the AP1000 design would not support
14 such a phenomenon.

15 JUDGE TRIKOUROS: These igniter location
16 criteria, were they developed from the hydrogen mixing
17 and combustion analyses performed by Westinghouse and
18 how were they elicited from that analysis? Was it
19 basically just judgment or judgment based on a review
20 of the analysis results?

21 MS. RONNLUND: Your Honor, I can refer you
22 to the DCD section that discusses the hydrogen igniter
23 subsystem which is 6.2.4.2.3. And, it explains that
24 the igniters were done -- were placed based on
25 evaluation of hydrogen transport in-containment and

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1 hydrogen combustion characteristics. And, that their
2 number and location was selected considering hydrogen
3 behavior.

4 And, that process for locating the
5 igniters was reviewed by NRC staff and design
6 certification endeavors.

7 JUDGE TRIKOUROS: Is that also provided in
8 DCD Section 19.41? Is that -- are they basically the
9 same analysis?

10 MS. RONNLUND: Your Honor, I believe -- I
11 don't have the full text here. I believe there is
12 some overlap between the two sections, but the
13 applicable section for the hydrogen igniters is the
14 6.2.4.2.3.

15 JUDGE TRIKOUROS: 19.41 specifically says
16 that the containment is assumed to fail if vessel
17 failure is predicted. I'm not making that up, it
18 actually -- it says that. I can get the exact
19 reference.

20 So, therefore, all of these phenomena that
21 we're discussing regarding other sources of hydrogen
22 and oxygen in terms of contention two, specifically,
23 are not considered for that reason, that the -- at
24 least in Section 19. Is that correct?

25 MS. RONNLUND: I believe they're not

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1 considered and I would have to reference Section 19 to
2 confirm. But, I think the reason they're not
3 considered is because they're not required by 10 CFR
4 50.44. 50.44 is what set out the accident scenario
5 prior to being considered and added the 100 percent to
6 apply to water interaction and that would lead you to
7 AP1000 DCD analysis.

8 So, I think the answer to your question is
9 the reason that additional sources are not considered
10 is they're not required by radiation.

11 JUDGE TRIKOUROS: All right. Well, but in
12 the -- at least in the DCD Chapter 19, that's the
13 reason provided. Not that that is not a licensing
14 consideration, I believe. But, that is the reason
15 provided. I just wanted to confirm that.

16 MS. RONNLUND: Yes, I'm happy to take a
17 moment and review that section and get back with you
18 if you'd like me to.

19 JUDGE TRIKOUROS: All right.

20 The partial failure of ADS Stage 4 has
21 other effects, not just IRWST effects in terms of such
22 things as assuming the bulk of hydrogen is propagated
23 into the free area of the containment volume. It has
24 to be better mixed and that sort of thing as opposed
25 to dead-ended sub-compartments.

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1 Was the -- did anybody review the analysis
2 done by Westinghouse to see if that particular
3 scenario had any other impacts on it?

4 I mean, we identified one which was the --
5 it became the primary hydrogen release to the IRWST.
6 And, a MOD was implemented as a result of that.

7 Were there any other implications of that
8 particular scenario in the plant?

9 MS. RONNLUND: Your Honor, the subject of
10 this license amendment request is the merit request by
11 Southern Nuclear to add two additional igniters in
12 order to retroact the DCD requirement and what the
13 igniters places where hydrogen is reasonably feasible.

14 So, in the scope of the license amendment
15 request, that's the only issue that Southern Nuclear
16 is presenting.

17 As to your larger question whether there
18 may be any other impacts in the scenarios that's in
19 other systems, I can -- I'm not prepared to answer
20 that question at this time. I'm not aware of any, but
21 I'm not prepared to answer that question fully.

22 JUDGE TRIKOUROS: All right.

23 Is it correct to say that the staff, in
24 their review, could have required additional analyses
25 for this LAR 15003 if they deemed it necessary? I'll

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1 ask that --

2 MS. RONNLUND: Your Honor --

3 JUDGE TRIKOUROS: -- of the staff later.

4 MS. RONNLUND: That's a difficult question
5 and I think 52.63(a) states that for additions to the
6 design certification that are not being changed are
7 subject to finality.

8 So, any analysis the staff might have
9 required would have to have been directly related to
10 a change in the design certification information.

11 Based on our review, there is no change
12 that would have allowed such a review or analysis.
13 However, obviously, if staff reviewed and they had
14 found such an impact and determined something was
15 being reopened or changed to design certification, at
16 that juncture, they could ask for additional analysis.

17 JUDGE TRIKOUROS: But, Southern Nuclear
18 didn't see any reason to change the Table 6.2.4-6
19 igniter location criteria out of their -- in fact, not
20 at all?

21 MS. RONNLUND: Absolutely not. These
22 igniters are being added to comply with the
23 certification criteria.

24 JUDGE TRIKOUROS: All right. But, the
25 criteria were very specific where they said the hooded

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1 vents, and identified four.

2 MS. RONNLUND: One that --

3 JUDGE TRIKOUROS: In other words, it
4 didn't -- you didn't change the criteria to say or
5 IRWST vents, you basically left it that the criteria
6 were four igniters at the hooded vents, not -- never
7 mentioning the roof vents, correct? I don't think
8 that was a change.

9 MS. RONNLUND: Actually, I believe -- give
10 me one second and let me double check here.

11 In Table 6.2.4-6, it states that -- excuse
12 me one second, Your Honor. Thank you.

13 It states that there will be a location
14 for potential hydrogen release location can be
15 designed, i.e., above the IRWST quarters, at the IRWST
16 vents, et cetera, igniter coverage is provided.

17 JUDGE TRIKOUROS: So, you felt that those
18 were general words about vents covered --

19 MS. RONNLUND: Yes.

20 JUDGE TRIKOUROS: -- covered the addition
21 of the two roof --

22 MS. RONNLUND: Yes.

23 JUDGE TRIKOUROS: Even though the criteria
24 just specifically mentioned hooded vents and for -- I
25 just want to make sure you went through that thinking.

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1 MS. RONNLUND: Yes, yes.

2 JUDGE TRIKOUROS: And, therefore, it was
3 a decision that was made that the criteria applied?

4 MS. RONNLUND: Yes, that -- Southern
5 Nuclear reviewed the criteria and concluded these
6 igniters were consistent and complied with the
7 criteria.

8 JUDGE TRIKOUROS: And, again, they were
9 not originally included because?

10 MS. RONNLUND: Your Honor, that decision
11 was made by Westinghouse in the original design
12 certification. Southern Nuclear is not aware of the
13 particular reason for that design.

14 JUDGE TRIKOUROS: But, Southern Nuclear
15 made that determination, right? Southern Nuclear
16 created the igniter location criteria, right?

17 MS. RONNLUND: No, Your Honor, that's in
18 the design certification that was Westinghouse
19 submitted and was approved as part of the AP1000 DCD
20 design certification. And then, Southern Nuclear
21 referenced that pre-design certification.

22 JUDGE TRIKOUROS: Yes, okay, that's fine.
23 All right, thank you.

24 Are hydrogen igniters required to meet
25 50.44(c) and GDC-41?

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1 MS. RONNLUND: In general, it's my
2 understanding that the regulation for all designs in
3 general does not necessarily require use of igniters.

4 However, the AP1000 design, that is the
5 method for meeting 50.44 that Westinghouse chose which
6 the NRC reviewed and approved.

7 JUDGE TRIKOUROS: Well, hopefully, I'll
8 find it before the end of this, but somewhere it says
9 that containment structural integrity is assured with
10 or without hydrogen igniters. I'll have to find that
11 in a few minutes.

12 So, as far as you're aware, that is not a
13 correct -- if I made that statement that the
14 containment structural integrity is assured with or
15 without hydrogen igniters, you would not agree with
16 that?

17 MS. RONNLUND: I do not disagree with that
18 statement. I just know that the particular
19 methodology to demonstrate compliance with 50.44 in
20 the DCD involved hydrogen igniters.

21 There may be additional information that
22 indicates the statement you are making is correct, but
23 for purposes of that regulatory requirement in which
24 that appears, the AP1000 design did need hydrogen
25 igniters.

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1 JUDGE TRIKOUROS: All right, thank you.

2 That analysis of containment structural
3 integrity assumes the service level 6, as a service
4 level 6?

5 MS. RONNLUND: Yes, it's beyond design
6 basis analysis for severe accidents.

7 JUDGE TRIKOUROS: All right, that's it for
8 me. Thank you.

9 CHAIRMAN SPRITZER: Just a follow up to
10 the last couple of questions there.

11 I would think, as a non-expert, that if
12 the hydrogen igniter system doesn't work as it's
13 supposed to, and suppose the Petitioners are right
14 that there are some problems with it, there's at least
15 some risk to the containment structure. But, correct
16 me if I'm wrong on that.

17 MS. RONNLUND: Well, the hydrogen igniter
18 subsystem is designed as redundancy and required by
19 general design criterion 41.

20 So, there's actually two igniters to every
21 necessary location, which are controlled by different
22 power sources.

23 So, there's a built in redundancy to avoid
24 any kind of failure of one igniter or one power port.
25 So, we know, in general, when it's an issue or a

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1 problem would not cause any offsite impact.

2 CHAIRMAN SPRITZER: So, even if these two
3 igniters are -- your position as the unit, these two
4 igniters are not where they should be, but there's no
5 risk to containment?

6 MS. RONNLUND: That's correct because the
7 existing analysis using only the 64 found that -- the
8 AP1000 design certification analysis using the 64
9 existing igniters was one of the reasons the NRC staff
10 found that those 64 met all regulatory requirements
11 and protected for any containment failure caused by
12 hydrogen.

13 So, even without these igniters, the
14 existing analysis still meets all requirements. So,
15 there would be no offsite consequence.

16 CHAIRMAN SPRITZER: So, that seems to lead
17 to the conclusion that the whole amendment really
18 isn't necessary to meet regulatory requirements, am I
19 following you correctly on that?

20 MS. RONNLUND: It was a conservative
21 decision to meet the criterion of design certification
22 regarding location of igniters as close to the source
23 as reasonably feasible.

24 But, the existing analysis that confirmed
25 the current hydrogen control system in the AP1000 DCD

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1 meets our requirements and aren't changed. So, that
2 analysis is subject to finality.

3 CHAIRMAN SPRITZER: All right, I can
4 understand your argument.

5 This number 5.8 times 10^{-8} per reactor
6 year, this is on page 30 of your response, for
7 standing purposes, wouldn't it be more relevant to
8 know what the risk of a severe accident -- or what's
9 the term -- beyond design basis accident scenario, the
10 frequency over the lifetime for the -- excuse me, not
11 the lifetime, but the license period for the reactor,
12 for standing purposes, if an accident, it doesn't make
13 a difference where an accident occurs in beyond design
14 basis accident scenario occurs in year one or ten or
15 whatever, wouldn't it be more appropriate for us to
16 look at what the risk is of an accident throughout the
17 entire life of license lifetime of the reactor?

18 MS. RONNLUND: Petitioner is required to
19 make a showing sufficient to meet the requirement for
20 standing. And, Petitioner made no offer or discussion
21 of the probability or likelihood or even how the
22 scenario that they posit could occur.

23 So, Southern Nuclear referenced
24 information included in the LAR where the possibility
25 for reactor here is simply offered to show that the

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1 probability of this occurring is very low and to point
2 out that Petitioner has not met its burden to show
3 offsite consequence by offering any analysis that such
4 an accident could occur.

5 CHAIRMAN SPRITZER: Of course --

6 MS. RONNLUND: So, while it may be more
7 appropriate in general for Petitioner to have offered
8 some discussion about how likely such an accident is
9 over the life of the plant, the use of this position
10 was intended to point out the flaw in Petitioner's
11 argument.

12 CHAIRMAN SPRITZER: They're not really
13 challenging that, as I understand it. What they're
14 concerned with is the potential consequence if the
15 igniters are, as they believe, not properly designed
16 and not properly located.

17 But, I'm not sure why they would be
18 required to challenge or present a probabilistic risk
19 analysis of the likelihood of the accident scenario
20 that is sort of the prerequisite for the igniters
21 actually coming into play.

22 What they're focusing on is the -- well,
23 if there is a severe accident, are the igniters going
24 to actually perform their intended function?

25 Are you saying they have to dispute the

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1 likelihood of a beyond design basis accident scenario
2 probability that you've given in order to establish
3 standing?

4 MS. RONNLUND: No, Your Honor. They are
5 obligated to offer a probable scenario, however, where
6 the incident that they relied on for the consequence,
7 be it the offsite consequence or the injury could
8 occur.

9 And, Petitioner has offered only general
10 discussions of hydrogen behavior and did not offer any
11 probable scenario in which an accident could occur.

12 Southern Nuclear's reference to the
13 probability is simply used to point out that the
14 probability is so low for this situation to even be
15 possible that Petitioners have speculation based to a
16 statement do not meet the requirement for standing.

17 CHAIRMAN SPRITZER: Well, as I understand
18 the argument for the possibility of offsite
19 consequences, it's the circular design to control
20 hydrogen, if it doesn't work effectively, you don't
21 have adequate control of hydrogen, therefore, you have
22 at least potential for offsite consequences.

23 I understand you dispute that, but why
24 isn't that enough for purposes of standing given that
25 the obvious purpose of this whole system is to prevent

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1 damage to the containment or at least part of it?

2 MS. RONNLUND: I think Southern Nuclear
3 understands where the Board is coming from. On this
4 particular issue, though, it has been clarified
5 multiple times by Mr. Zeller this morning, the entire
6 hydrogen control system is not at issue.

7 The only thing at issue in this LAR is two
8 additional igniters. And so, the finding that already
9 exists that Mr. Zeller has told us multiple times he
10 is not challenging is that the original 64 igniters
11 control hydrogen such that detonation will not occur.

12 And so, this basis for standing here of a
13 general failure of hydrogen control system is not
14 addressable on this license amendment proceeding
15 because we're only talking about those two additional
16 igniters.

17 So, there is an issue between the general
18 failure of the hydrogen system, which is not at issue,
19 versus what is at issue with only these two additional
20 igniters.

21 CHAIRMAN SPRITZER: Okay. I would agree
22 with you if he were challenging the whole igniter
23 system. But one thing he's been quite clear on is
24 he's not challenging that, he's challenging these
25 additional two.

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1 I understand your position that, by
2 themselves, they're not enough to create an obvious
3 potential for offsite consequences, but they seem to
4 dispute that.

5 Let me ask another question on that line.
6 Have you read the Board's decision on contention
7 admissibility in the Calvert Cliffs case of the
8 Commission's decision upholding that? If you haven't,
9 that's all right, I'm not --

10 MS. RONNLUND: The Calvert Cliffs case --

11 CHAIRMAN SPRITZER: I don't think that --

12 MS. RONNLUND: Do you have a year or --

13 CHAIRMAN SPRITZER: I don't have the
14 citation and I'm just asking if you happened to have
15 read it. If you haven't, I'm not asking you --

16 MS. RONNLUND: Off the top of my head, I'm
17 not sure, Your Honor.

18 CHAIRMAN SPRITZER: That was kind of the
19 issue that was raised there. Let me ask this, are you
20 aware of any case that is either from the Commission
21 or Supreme Court or Federal Court of Appeals that's
22 ever said in order to establish standing you have to
23 show a probability of an accident, some kind of
24 release into the environment that passes a specific
25 numerical threshold?

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1 MS. RONNLUND: I'm not aware of such a
2 case and that's not Southern Nuclear's position, Your
3 Honor. Our position is simply that the injury or
4 offsite consequences have to meet the probable and
5 cannot be based on mere speculation.

6 CHAIRMAN SPRITZER: All right.

7 I have nothing else. Anything else?

8 JUDGE TRIKOUROS: I still have one area,
9 just one question I need a little more on.

10 The original analysis that was done
11 without these two igniters, would have assumed a
12 significant amount of hydrogen release from that
13 release point without being burned by the igniters.

14 Therefore, it would have been dealt with
15 by other igniters.

16 But, it was also mentioned that the two
17 closest igniters, the two at the 30 foot elevation
18 about the roof vents couldn't be determined whether or
19 not they would be successful in that regard because
20 the analysis was too complex.

21 But, yet, somehow the original design
22 basis of the plant, it got dealt with in that
23 analysis. And, that -- I'm still missing that
24 connection.

25 And, I don't think, you know, if I don't

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1 get that answer, I'm not sure that it means much here,
2 but that is -- and I will ask that question to the
3 staff as well.

4 MS. RONNLUND: May I have just have one
5 moment to confer with our expert?

6 JUDGE TRIKOUROS: Thank you.

7 (Whereupon, the above-entitled matter went
8 off the record at 12:18 p.m. and resumed at 12:19
9 p.m.)

10 MS. RONNLUND: Yes, Your Honor, thank you
11 for that.

12 The original analysis performed for design
13 certification considered the area above the IRWST as
14 including multiple release paths. And, the analysis
15 showed that the existing igniter location, a direct
16 path in conformance with all requirements.

17 JUDGE TRIKOUROS: So, it wasn't too
18 complex to be modeled, it, in fact, was modeled?

19 MS. RONNLUND: There was the available
20 information is not -- the modeling is not
21 sophisticated enough to show any more detail in a
22 particular pathway. So, it only shows the existence
23 of hydrogen but cannot be used to show particular
24 pathways. It can only show the existence of hydrogen
25 in certain areas.

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1 JUDGE TRIKOUROS: So, if hydrogen was
2 released from the roof vents, it went into this one
3 node, one volume and, on an average well mixed basis,
4 the two igniters that were in that volume were
5 sufficient?

6 MS. RONNLUND: Yes.

7 JUDGE TRIKOUROS: All right, thank you.

8 CHAIRMAN SPRITZER: All right, thank you,
9 Ms. Ronnlund.

10 I think we'll move on to the staff now.
11 Is -- we're okay with keeping going at this point to
12 finish up with the staff. Although, we also do have
13 ten minutes of rebuttal that we'll still allow for Mr.
14 Zeller.

15 Any thoughts from the representatives?
16 Would you rather take a break now for lunch and come
17 back in about 45 minutes or keep going and try and
18 finish now in about an hour?

19 MS. CARPENTIER: Your Honor, the staff
20 might lose this conference room if we go too long.

21 CHAIRMAN SPRITZER: All right, so we
22 should keep going then?

23 MS. CARPENTIER: I would say so because
24 we've had people outside looking like they want the
25 room and I'm not sure how long we can hold it.

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1 CHAIRMAN SPRITZER: How long do we have it
2 until?

3 MS. CARPENTIER: We hold it until 11:30
4 but I know that what was going to be in here at 12:00
5 has relocated, so, we'd like to continue.

6 CHAIRMAN SPRITZER: All right. Anybody
7 have a serious problem with that?

8 Hearing no objections, we'll move on and
9 hear from the staff.

10 Mr. Irvin?

11 MR. IRVIN: Good afternoon, Your Honors.

12 Again, my name's Ian Irvin and I'm
13 representing the NRC staff and will be addressing
14 standing. With me is Ms. Marcia Carpentier who is
15 representing the NRC staff as well.

16 She'll be addressing contention
17 admissibility.

18 Based on the Petition and as articulated
19 in our answer, the NRC staff does not challenge the
20 standing of BREDL in this proceeding.

21 And, I'll turn it over to Ms. Carpentier
22 concerning contention admissibility.

23 Thank you.

24 MS. CARPENTIER: I'm in place with the
25 computer now.

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1 You've had a lot of information presented
2 already, so I will try to keep my remarks short.

3 For the reasons set forth in our pleading,
4 proposed contention one is inadmissible for failure to
5 meet the contention pleading requirements in 10 CFR
6 2.309(f) (1) with regard to scope, materiality, factual
7 support and identification of a genuine dispute with
8 the applicant.

9 Regarding scope, the Petitioner's reply
10 and statements today clarify their contention is not
11 intended to challenge things that were settled by the
12 AP1000 rulemaking.

13 That clarification eliminates a number of
14 peripheral arguments in the original contention
15 related the use of hydrogen igniters generally, the 64
16 igniters already in the certified design and general
17 criticisms of the robustness of the AP1000 containment
18 design.

19 The staff argues that these matters were
20 outside the scope of the license amendment and,
21 apparently, the Petitioners agree.

22 However, the remaining claims in the
23 contention still fail to satisfy the other
24 requirements of 10 CFR 2.309(f) (1) regarding
25 materiality, factual support and a demonstration of a

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1 genuine dispute with the applicant.

2 Most significantly, the Petitioners do not
3 engage with applicant's stated justification for the
4 addition of and placement of the two proposed hydrogen
5 igniters in containment.

6 As the Board has noted, they don't make a
7 safety argument for why adding two igniters creates a
8 new safety concern that's distinguishable from those
9 that have already been analyzed.

10 By failing to engage with the stated
11 justification and the license amendment request,
12 including the igniter placement criteria, the
13 Petitioners fail to demonstrate the existence of a
14 genuine dispute as required by regulation.

15 Rather than challenge the license
16 amendment request directly, the Petitioners discuss a
17 number of topics that might as the Court an admissible
18 contention nor represent admissible contentions in
19 their own right.

20 For example, the Petitioners argue that
21 the applicant failed to perform four specific analyses
22 in its license amendment request.

23 However, these analyses, which are taken
24 from the Interim Staff Guidance document mentioned by
25 Mr. Zeller are not regulatory requirements in this

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1 instance. They are analyses to determine whether a
2 proposed change to a licensed facility requires a
3 license amendment and associated exemption.

4 Here, the applicant has determined that
5 both are required because the change affects Tier 1
6 information in the DCD and Petitioners have not
7 explained how these analyses would affect the license
8 amendment request which has already been submitted.

9 It, therefore, fails to satisfy the
10 materiality requirement of 10 CFR 2.309(f)(1).

11 The Petitioner has also raised several
12 topics related to the nuclear accident at Fukushima,
13 Japan, again, without specifying a relationship or a
14 connection to the license amendment under
15 consideration here.

16 I don't want to repeat all of the claims
17 about the arguments regarding this, they're in our
18 pleading, but the Petitioners did not explain and
19 that's key to, you know, in their pleadings, they do
20 not explain how the claims to the license amendment
21 are correct under consideration here.

22 And, the claims related to Fukushima,
23 therefore, fail to demonstrate a genuine dispute with
24 the applicant's petition under consideration.

25 And, both fail to satisfy other conditions

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1 of 10 CFR 2.309(f) (1) as well, especially with regard
2 to materiality and factual support.

3 For all these reasons, proposed contention
4 one is inadmissible and should be rejected.

5 Regarding proposed contention two, this
6 also focuses on analyses the Petitioner believes must
7 be performed to support the license amendment request.

8 Like proposed contention one, proposed
9 contention two includes a range of different claims
10 that, in the end, does not include any substantive
11 challenge to the license amendment request here.

12 Further, the proposed contention is
13 inadmissible for failure to BREDL to support a genuine
14 dispute with the applicant as required by 2.309(f) (1).

15 Like contention one, contention two raises
16 a number of issues that the staff argued were outside
17 the scope of the proceeding because they will result
18 in the rulemaking on the AP1000 design.

19 These include claims related to the
20 analyses of the generation of hydrogen containment as
21 well as claims related to containment integrity under
22 severe accident conditions.

23 The analyses of these matters to the
24 AP1000 falls in the requirements of regulation in 10
25 CFR 50.44, Combustible Gas Control for Nuclear Power

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1 Reactors.

2 The staff pleading includes the section on
3 the content of that regulation and, in particular, the
4 changes made when the rule was revised in 2003.

5 Although these claims are discussed in the
6 Petitioner's initial pleading, the Petitioners have
7 stated that it is not their intent to challenge the
8 analyses performed for the AP1000. So, apparently,
9 they agree that claims related to these analyses are
10 outside the scope of this proceeding.

11 Many of the Petitioner's claims are also
12 inadmissible because they call for analyses not
13 particularly required by the relevant regulation.
14 And, which in some cases, they're specifically removed
15 from that regulation when the NRC revised it in 2003.

16 These include analyses related to sources
17 of hydrogen other than the reaction between zirconium
18 and water, other sources of hydrogen which the
19 Petitioners don't specify, radiolytic decomposition of
20 water and core concrete interaction and sources of
21 hydrogen and oxygen.

22 10 CFR 2.335(a) prohibits contentions that
23 challenge NRC regulation and extends that prohibition
24 to contentions seeking to impose additional
25 requirements beyond those found in regulations.

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1 For this reason, the Petitioner's
2 assertion that these analyses are required cannot be
3 the basis for an admissible contention.

4 Proposed contention two also includes
5 statements that appear to be restatements of
6 contention one and that are inadmissible for the same
7 reasons.

8 For obvious reasons, proposed contention
9 two is inadmissible under 2.309(f)(1) and 2.335 and
10 should be rejected.

11 And, to summarize, although the staff does
12 not challenge the Petitioner's standing in this
13 proceeding, they have not submitted an admissible
14 contention and their Petition must, therefore, be
15 rejected.

16 JUDGE ARNOLD: I've got a question
17 concerning standing and I, frankly, do not understand
18 why you agree that Petitioners have established
19 standing. Can you explain that to me?

20 MR. IRVIN: Sure. We believe that for the
21 Petition and associated documents, when taken -- when
22 construed in favor of the Petitioners, has stated a
23 scenario where there may be an obvious potential for
24 offsite consequences.

25 JUDGE ARNOLD: Okay. Let me refer you to

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1 page 18 of your answer in which you say, the hydrogen
2 control system as a whole was analyzed extensively at
3 the design certification stage for the AP1000 and the
4 analysis was incorporated by reference at the combined
5 license stage for the VEGP Units 3 and 4.

6 And then, in the same paragraph, you say
7 the Petitioner fails to explain why the proposed
8 addition of two hydrogen igniters entailed a safety
9 concern with the technical justification for the LAR
10 that is distinguishable from the technical basis for
11 the prior analysis of hydrogen igniters.

12 It seems to me that you've stated right
13 there that there is -- that the Petitioners have not
14 stated a difference with the safety case whether you
15 add those two igniters or not.

16 So, what is the obvious potential that
17 they've established?

18 MR. IRVIN: Again, because we only look at
19 the Petition on face value concerns standing, because
20 of the lower bar, we accepted what the Petitioner said
21 in the Petition and the standing declaration just at
22 face value.

23 Concerning contention admissibility, we
24 looked at it in another aspect, which Ms. Carpentier
25 can address in greater detail.

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1 JUDGE ARNOLD: Contention one states,
2 quote, the proposed modifications by the Southern
3 Company creates an extremely dangerous situation
4 rather than mitigating it.

5 Is there any rule stating that all
6 proposed license amendments must increase safety?

7 MS. CARPENTIER: Well, proposed license
8 amendments have to meet all regulatory requirements.
9 If you get one that does not meet regulatory
10 requirements or that causes a new hazard, that would
11 be dealt with in the staff's review.

12 And, the lessons don't go too far on that
13 because the staff has not has not yet published its
14 safety evaluation. But, the general principle is that
15 we review them to make sure that they do not create
16 new hazards.

17 JUDGE ARNOLD: But, is there a requirement
18 that a license amendment not decrement safety?

19 MS. CARPENTIER: Your Honor, we found some
20 citations relevant here, it is in Appendix B, the
21 AP1000 design certification to Part 52, Roman Numeral
22 VIII, Number 4.

23 And, that says, the Commission will deny
24 a request for an exemption from Tier 1, which is what
25 we're dealing with here, if it finds that the design

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1 change will result in a significant decrease in the
2 level of safety otherwise provided by the design.

3 That's for exemption from Tier 1
4 information for the AP1000.

5 JUDGE ARNOLD: Okay. So, if it's
6 significant degradation to safety, it will be
7 rejected. But, that's suggests that there's no clear
8 requirement that a license amendment not decrement
9 safety in any way.

10 You could hypothesize a situation in which
11 there would be a slight decrement in safety and still
12 approve a license amendment?

13 MS. CARPENTIER: We'd have to look at the
14 totality of the amendment request, but, yes, if it's
15 not significant, then, you know, we would have to
16 evaluate that accordingly.

17 JUDGE ARNOLD: On page eight of the
18 Petition regarding contention one, Petitioners state
19 the proposed solution involves a new threat to the
20 already vulnerable AP1000 containment by placing
21 Vogtle Units 3 and 4 hydrogen igniters near the
22 location of excess concentrations of hydrogen.

23 Isn't placing the igniters near regions of
24 excess hydrogen desirable to produce the combustion at
25 the soonest possible time?

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1 MS. CARPENTIER: Yes, that is the intent,
2 to burn off the hydrogen close to the source to
3 prevent excess concentrations from developing.

4 JUDGE ARNOLD: The statement of contention
5 two on page ten is, the engineering and support of the
6 proposed modification fails to evaluate historical
7 precedence of hydrogen explosions.

8 Can you tell me, first, is there a
9 requirement for a license amendment to consider
10 historical precedence?

11 MS. CARPENTIER: No, there isn't. But, I
12 would also direct you to the Federal Register Notice
13 citation in the Statement of Consideration therein for
14 the 2003 rule change to 10 CFR 50.44 which does go
15 into the history there and how the provided rule looks
16 the way it does and the various analyses the NRC has
17 done over the years in support of that rule.

18 (Telephonic interference.)

19 MS. CARPENTIER: -- in the license
20 amendment request.

21 JUDGE ARNOLD: Okay. That was my next
22 question.

23 Since the Petitioners specifically point
24 to Fukushima, have the hydrogen combustion events at
25 Fukushima been considered by staff regarding whether

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1 they would support changes to any hydrogen control
2 rules?

3 MS. CARPENTIER: I call your attention to
4 the footnote 114, I believe it is, in our pleading
5 which goes through some of that and it references a
6 recent SECY paper which I have here if I can find it,
7 SECY-16-0041 from earlier this year has a section
8 about what's been done up until now on evaluation of
9 hydrogen control and mitigation.

10 It reaches the conclusion that nothing
11 more remains to be done and it also cites to a letter
12 from the Advisory Committee on Reactor Safeguards from
13 March of this year where they agree that no further
14 regulatory action is warranted for closure of the Near
15 Term Task Force report on hydrogen control.

16 JUDGE ARNOLD: Okay, thank you.

17 CHAIRMAN SPRITZER: On the -- let me start
18 with page, I think it's page -- excuse me -- footnote
19 113. I just wanted to make sure I understand.

20 There's a statement in there that you
21 quote referring to boiling water reactor facilities
22 with Mark I and Mark II, by the way, for the Court
23 Reporter, that's the word Mark, M-A-R-K, Mark I and
24 Mark II containment structures are required to operate
25 their containments with inerted atmospheres.

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1 PWR, that is pressurized water reactor
2 facilities, with large dry containments do not control
3 hydrogen build up inside the containment structure
4 because the containment volume is sufficient to keep
5 the pressure spike of potential hydrogen deflagrations
6 within the design pressure of the structure.

7 Now, that confuses me because, I
8 understand that Vogtle Units 3 and 4 are pressurized
9 water reactors and you are attempting to control
10 hydrogen build up, at least unless I'm totally missing
11 something here.

12 Can you explain what, at least to my non-
13 expert mind, appears to be a certain inconsistency
14 there?

15 MS. CARPENTIER: If I could have a moment
16 to consult with technical staff on that?

17 (Whereupon, the above-entitled matter went
18 off the record at 12:37 p.m. and resumed at 12:37
19 p.m.)

20 CHAIRMAN SPRITZER: We seem to have --
21 Marcia, we can't hear you right now. You might need
22 to unmute yourself.

23 MS. CARPENTIER: I've muted the phone on
24 purpose because I'm posing your question to my
25 technical staff here. Sorry.

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1 CHAIRMAN SPRITZER: Oh, I'm sorry. I
2 thought you were talking to us. Go ahead.

3 (Whereupon, the above-entitled matter went
4 off the record at 12:37 p.m. and resumed at 12:38
5 p.m.)

6 MS. CARPENTIER: Okay, to answer your
7 question, the statements here from SECY-11-0093 and,
8 I apologize if you hear grinding noises, there's
9 construction on the floor below us. I'm not sure if
10 you're picking up that sound. But, there's nothing we
11 can do to control that.

12 Back to the question, the statements that
13 you quoted in footnote 113 is a general ovation that
14 may or may not apply in any given case.

15 In this case, the AP1000 has elected to
16 credit hydrogen igniters and the staff evaluated that
17 decision by Westinghouse.

18 CHAIRMAN SPRITZER: One of my colleagues
19 suggested that the reason might be that the AP1000
20 containment is actually smaller than containments used
21 in other pressurized water reactors. Is that accurate?

22 MS. CARPENTIER: I'm not certain of
23 Westinghouse's rationale. I'm not sure we have the
24 people here to answer that question.

25 They looked at local concentrations in

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1 that particular design and, apparently, decided that
2 that was the correct way to go. And, we evaluated
3 accordingly, but we are not privy to their decision
4 there.

5 Yes, and they credited that to meet 50.44
6 and, again, we evaluated that.

7 CHAIRMAN SPRITZER: On the question of
8 location of the igniters, they're supposed to be, I'm
9 looking at page 12 of the LAR, the locations where the
10 potential hydrogen release can be defined, i.e., above
11 the IRWST spargers, at IRWST vents, et cetera, igniter
12 coverage is provided as close to the source as
13 feasible.

14 And, I understand the position of Southern
15 Nuclear is they complied with that and the staff,
16 apparently, agreed.

17 I'm just curious, how do you define or how
18 do you decide whether they're as close to the source
19 as feasible? Is that just an engineering judgment or
20 is there some other way you go about making that
21 determination?

22 MS. CARPENTIER: Again, I'm going to put
23 you on mute and ask this question of technical staff.

24 CHAIRMAN SPRITZER: All right.

25 (Whereupon, the above-entitled matter went

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1 off the record at 12:41 p.m. and resumed at 12:41
2 p.m.)

3 MS. CARPENTIER: Okay, that would be no
4 roof vents are near the spargers and the spargers are
5 bringing the hydrogen and that's the basis for this
6 determination.

7 CHAIRMAN SPRITZER: Okay. Finally, let me
8 ask the question I also asked Southern Nuclear. Is
9 there a point at which changes in the number or
10 location of igniters would require some additional
11 quantitative analysis?

12 I understand it's the position that it's
13 not required in this case, but I'm curious what --
14 will we ever get to the point at which you have to go
15 back and revisit the quantitative analysis that was
16 done initially for the hydrogen igniters to support --

17 MS. CARPENTIER: I'm sure we could come up
18 with a hypothetical that is a sufficiently large
19 change to the hydrogen control system generally that
20 we would have to go back and revisit it.

21 But, this one is a small incremental
22 change within the criteria that have already been
23 established. And so, we don't think that we're close
24 to that with this here.

25 CHAIRMAN SPRITZER: So, that sounds like

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1 that's also a judgment call that the licensee and the
2 staff make, is that correct?

3 MS. CARPENTIER: Well, the locations
4 themselves are in Tier 1 of the design certification
5 and that means they can't be changed without coming to
6 the staff. And, they'd have to come in for amendments
7 and exemptions and we'd have to look at the specifics
8 in any given case.

9 You know, just for the fact that it's Tier
10 1 means we have to look at it. They can't make the
11 change without our consent. But, you know, if you
12 have to generalize about situations that are not
13 before us right now, they'd have to reach a technical
14 justification of some sort and we would evaluate on
15 based on what they submitted.

16 CHAIRMAN SPRITZER: Are there any
17 regulations that address that issue when an additional
18 analysis might be required?

19 MS. CARPENTIER: About hydrogen igniters
20 particularly?

21 CHAIRMAN SPRITZER: Yes.

22 MS. CARPENTIER: Within the design
23 certification, no, they're codified in the rule itself
24 in Appendix D to Part 52. But, in terms of general
25 safety rules, I do not believe so.

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1 JUDGE TRIKOUROS: Can you hear me?

2 MS. CARPENTIER: Yes.

3 JUDGE TRIKOUROS: The scenario that
4 started all this was failure -- partial failure of ADS
5 4, ADS Stage 4 which apparently has -- which
6 apparently is the new threat, according to the
7 Petitioner that they were referring to.

8 And, which form the new, I'll use the word
9 design basis, but it -- I mean it only in the sense
10 that it's the largest incursion of hydrogen into the
11 IRWST that have been considered earlier.

12 And, there were some issues regarding
13 adequacy of hydrogen igniters in the IRWST that came
14 out of this resulting in this LAR.

15 Does the staff -- did the staff review the
16 hydrogen mixing and combustion analyses of
17 Westinghouse to be sure that there were no other --
18 that this was correct and that there were no other
19 implications with that -- of that scenario such that
20 no new revised analysis was required of the applicant?

21 MS. CARPENTIER: The staff did the
22 analysis at the initial design certification and at
23 the amendment, as noted. They have not done -- well,
24 let's put it a different way.

25 The SER for this license amendment request

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1 has not been published yet. So, I'm not sure what
2 else I can say about that.

3 JUDGE TRIKOUROS: All right. So, there is
4 a -- there might even be a possibility that an
5 analysis modification would be required? You're not
6 going to answer that, either?

7 MS. CARPENTIER: I'm reluctant to go that
8 far at this point.

9 JUDGE TRIKOUROS: Yes, I understand.

10 MS. CARPENTIER: It's important to note
11 that, you know, we're looking for contention
12 admissibility purposes, at the pleadings, and whether
13 they've built that bridge between these two igniters
14 and the scenarios that they propose.

15 We maintain that they have not done that
16 and that they do not meet the contention pleading
17 requirements.

18 The staff is still doing its review,
19 however, and that doesn't change. Nothing about this
20 request for a hearing changes that in any way.

21 JUDGE TRIKOUROS: Yes, that's fine.

22 And, which then covers a number of my
23 questions. And, I'll ask, I actually have only one
24 question now.

25 This change to the plant, it's still not

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1 affecting the DCD igniter placement criteria, right?

2 MS. CARPENTIER: No, it is not.

3 JUDGE TRIKOUROS: In the eyes of the staff?

4 MS. CARPENTIER: In the eyes of the staff,
5 yes.

6 JUDGE TRIKOUROS: Will that safety
7 evaluation that you're writing deal with the question
8 of whether or not this modification is generically
9 important?

10 MS. CARPENTIER: Let me check with the
11 people who are writing it.

12 According to the authors, it is not
13 currently in there.

14 JUDGE TRIKOUROS: Okay.

15 In the staff's review, now, again, you're
16 going to tell me you're in the middle of this, but, I
17 was wondering how you determined the two igniters were
18 sufficient? That's the determination you're obviously
19 going to have to make, right?

20 MS. CARPENTIER: Yes, that will be.

21 JUDGE TRIKOUROS: I don't have any more
22 questions.

23 Thank you.

24 CHAIRMAN SPRITZER: All right, Mr. Zeller,
25 you reserved ten minutes. Obviously, we went well

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1 beyond it for the half hour with you, but we'll allow
2 you the ten minutes for rebuttal if you have anything
3 further to add.

4 We will, however, hold you to that, so we
5 want to get out of here by 1:00. Hopefully, the staff
6 has not yet been evicted from their room. It looks
7 like Ms. Carpentier is still there, so I think we can
8 assume that.

9 Go ahead.

10 MR. ZELLER: Very good, thank you,
11 Chairman Spritzer.

12 I always learn something at proceedings
13 such as this one. But, today I heard new ones which
14 I've written down.

15 Is that there is no clear requirement that
16 a change not decrement safety, that is, cause a
17 numerical decrease in the safety.

18 I've felt that and others that I work with
19 have felt that for some time, it is quite refreshing
20 to hear it come from a member of the Atomic Safety
21 Licensing Board and we will remember that.

22 And, let me just conclude with a couple of
23 items after hearing the discussion that the Blue Ridge
24 Environmental Defense League disputes in its entirety
25 Section 4.3, pages 16 and 17 of Southern Company's

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1 request for a license amendment and exemption, that is
2 LAR-15-003.

3 But, we believe that, in conclusion, the
4 issues call for a hearing, that a genuine scientific
5 disagreement on an essential decisional issue is the
6 kind of thing which is ordinarily raised for
7 adversarial exploration and eventual resolution in the
8 adjudicatory context.

9 And, the precedent for this comes from
10 Metropolitan Edison Company and the Three Mile Island
11 Nuclear Station and the decision brought in 1983 at 17
12 NRC 102.

13 There seems to be at least a question
14 raised that there are even hydrogen igniters necessary
15 which does seem to be a backing up from what Southern
16 Company had posited in their license amendment
17 request, is that the design review identified a
18 scenario which the plant damage meets core damage
19 frequency cutoff to be considered as part of the
20 severe accident analysis.

21 The process for modifying their licensing
22 basis is set forth in 10 CFR 52.98(f), the licensee
23 requesting amendment must perform the applicability
24 determination, safety, security interface evaluation
25 and construction impacts evaluation and the

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1 aforementioned 50.59 like screening evaluation.

2 50.59 does apply and a licensee may make
3 changes to the facility only if the change to the
4 specific specification incorporation in the license is
5 not required, this is 50.59 I'm reading from, and the
6 change test or experiment does not meet any of the
7 criteria in paragraph (c)(2) of this section. And,
8 there's a long list in which the licensee is required
9 to get the license amendment, if the change would
10 result in more than a minimal increase in the
11 frequency of occurrence of an accident, more than a
12 minimal increase in the consequences of an accident or
13 creates a possibility from an accident of a different
14 type and, further, requirements.

15 Under 50.54, that is Combustible Gas
16 Control, as to whether it applies, in the footnote
17 50.44, number two, it says the requirement of this
18 paragraph apply only to water-cooled reactor designs
19 with characteristics such that the potential for
20 production of combustible gases is comparable to
21 light-water reactors designs licensed as of October
22 2003.

23 So, basically, that is all water-cooled
24 reactor designs which certainly does include Vogtle
25 Units 3 and 4.

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1 So, that requires combustible gas control
2 and et cetera, et cetera, equipment survivability,
3 which we had mentioned in this discussion today and
4 structural analysis.

5 The addition of two -- oh, pardon me.

6 As I said, we do dispute Section 4.3 of
7 the significant hazards consideration of Southern
8 Company's request in which we acknowledge they say
9 their responses in terms of if there are any impacts,
10 they say no, no, no. And, I think we have shown that
11 there -- that those conclusions are certainly called
12 into question by the information that we have
13 presented and would present at an evidentiary hearing.

14 The addition of two additional igniters is
15 the question. But, the consequences of the two
16 additional igniters is done improperly in the creation
17 of one additional hydrogen explosion is what we are
18 talking about.

19 The modeling of the enclosures above the
20 integrated storage water -- integrated storage water
21 tank is either too complex to model or it wasn't too
22 complex but they elected not to.

23 And, they elected not to, apparently,
24 because, on average, there's a well-mixed basis for
25 the hydrogen within the containment structure.

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1 These are a series of assumptions which
2 are not supported by the license amendment request.

3 So, I guess I will just close in saying
4 that, in terms of -- in the questions of standing, I
5 believe we have amply demonstrated that the impact to
6 our members constituted the basis for standing because
7 of the levels of flammable gas created in an accident
8 reaching concentrations sufficient to cause a breach
9 in the containment goes to impact on the surrounding
10 community.

11 There is a clear potential for offsite
12 consequences with the breach of containment which is
13 certainly what is being discussed here if the hydrogen
14 system -- ignition system either does not work or
15 works improperly or, in fact, is a part of the
16 problem.

17 So, I do look forward -- I do appreciate
18 the opportunity to address these questions and we look
19 forward to resolution of these issues in the interest
20 of public safety.

21 Thank you.

22 CHAIRMAN SPRITZER: Thank you.

23 All right, all right, we wrote, Mr.
24 Zeller, you had earlier offered to provide some
25 additional information on Mr. Gundersen's

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1 qualifications. We'll allow you to do that. How much
2 time do you think you need for that? Hopefully, not
3 much.

4 MR. ZELLER: We could get that done, I'm
5 sure, within, what's today, it's Tuesday, by the end
6 of the week. Would that work?

7 CHAIRMAN SPRITZER: We'll give you five
8 business days and that will take you to next week.

9 MR. ZELLER: Don't see Mr. Gundersen on my
10 screen. He could shake his head yes. Yes, okay, that
11 will be fine, five business days.

12 CHAIRMAN SPRITZER: All right, so that
13 would take us to next Wednesday, the 10th of August.
14 So, if you can get us that by close of business next
15 Wednesday, we will consider that additional
16 information.

17 MR. ZELLER: Yes, sir.

18 CHAIRMAN SPRITZER: To the extent it may
19 be relevant.

20 Do the staff or Southern Nuclear have any
21 objection to that?

22 MS. CARPENTIER: No, Your Honor.

23 CHAIRMAN SPRITZER: I see a shake of the
24 head from Southern Nuclear counsel.

25 MS. RONNLUND: No, Your Honor.

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1 CHAIRMAN SPRITZER: All right.

2 Unless anybody has anything else -- oh.
3 Judge Trikouros.

4 JUDGE TRIKOUROS: I just wanted to clear
5 up one thing. I had mentioned earlier the standing
6 integrity evaluation you've done with and without
7 hydrogen igniters or at least there was a statement to
8 that, it applied only in PRA space, not in licensing
9 space, so we can ignore it.

10 MS. RONNLUND: Thank you.

11 CHAIRMAN SPRITZER: All right, does anyone
12 else have anything further they'd like to raise at
13 this time?

14 Hearing no takers, we will adjourn. As
15 far as our ruling, we certainly intend to comply with
16 the 45-day requirement and hopefully, we'll actually
17 be somewhat earlier than that. But, in any event, we
18 will get it out, certainly do our very best to get it
19 out on schedule. And, if somehow our -- that doesn't
20 work out, you will see an appropriate Order from the
21 Board.

22 Thank you for your participation and we
23 are now adjourned.

24 (Whereupon, the above-entitled matter went
25 off the record at 12:59 p.m.)