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NUCLEAR REGULATORY COMMISSION

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

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

Location: teleconference

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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

APPEARANCES:

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Arnold Gunderson
Chandu Patel
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 the 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, the application 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 to me to introduce themselves starting on my right.

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

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

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

Let me start with the Petitioners.

MR. ZELLER: Good morning. This Is Lou Zeller representing the Blue Ridge Environmental Defense League and the Concerned Citizens of Shell Bluff.

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

MR. ZELLER: I am alone here in the office. I have my technical expert, Arnold Gundersen,

also online.

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

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

MR. IRVIN: All right. My name is Ian Irvin and I'm representing the NRC staff, a leader in good standing.

With me is Ms. Marcia Carpentier, she'll be representing NRC staff concerning contention admissibility.

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

CHAIRMAN SPRITZER: And, for the Southern Nuclear Company?

MS. RONNLUND: Good morning. This is Milli Ronnlund with Balch and Bingham for Southern Nuclear.

In the room with me I have Jason Redd and Amy Chamberlain of Southern Nuclear.

I also have Stan Blanton and Alan Lovett with Balch and Bingham.

CHAIRMAN SPRITZER: Very good, thank you.

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

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

The license amendment relates to the addition of two hydrogen igniters in the -- in or near something called the in-containment refueling water storage tank which we may abbreviate as IRWST so we're not challenged by that rather long phrase every time we mention it.

And, the Petition is challenging the support or justification for that amendment.

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

And then, we'll also be hearing argument on the admissibility of their contentions. Contentions are generally what you might refer to as their claim, their arguments why the amendment should

not be granted.

Before we can proceed to an evidentiary hearing, however, those contentions have to meet some rather strict requirements. So, that's the second issue we'll be hearing argument on today.

There are no witnesses. We will not be taking any evidence. We will simply be listening to the arguments presented by the parties' representatives.

We won't be using time cards today. We do have a lot -- we do have allotted time for all of the representatives. For technical reasons, we'll dispense with the time card. But, I'll give you a warning. Generally, we will let you speak, certainly long enough to answer all the Judges' questions that we have.

And, I think that giving everybody enough time, but you should also have time to make whatever presentation you may have prepared.

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

really gets out of hand.

But, you need to let us know that and you can mute the phones, I believe. Let me check with our technical person. You'll have to mute your phones so you can confer. We will, however, allow you to do that, so just let me know I need to confer with someone who's here with me or with Mr. Gundersen for Mr. Zeller, and we'll give you time to do that.

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

MS. RONNLUND: No, Your Honor.

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

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

CHAIRMAN SPRITZER: All right.

MS. CARPENTIER: This is Marcia Carpentier for the staff.

It is usually the case in these matters that staff goes third and we would have no problem with following that or reversing it, if necessary.

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

All right. And, Petitioners have 30 minutes. I understand Mr. Zeller will be speaking for the Petitioners. Be sure to speak into the microphone and identify yourself for the benefit of the Court Reporter.

I think that's all I have in the way of housekeeping, introductory matters.

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

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

Hearing none, why don't we move ahead then and let's hear from the Petitioners.

Mr. Zeller?

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

I would like to reserve from our 30

minutes ten minutes for rebuttal, if I might.

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

MR. ZELLER: That would be sufficient.

CHAIRMAN SPRITZER: All right.

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

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

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

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

Our focus today is not on a procedural matter such as environmental impacts or water quality which we have argued in other proceedings.

No, our contention is the potential for hydrogen explosions at plant Vogtle.

(Cell phone ringing.)

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

MR. ZELLER: I apologize that was me. Wrong number.

As important as environmental concerns are, they need to protect public safety and deserves the highest consideration of the Atomic Safety Licensing Board because people's lives are at stake.

And, the Nuclear Regulatory Commission, of course, is the governmental body primarily responsible for regulation and safety of nuclear activities.

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

Before us is Southern Company's license amendment request to add two auxiliary hydrogen igniters, spark plugs which prevent excessive levels of hydrogen within the containment of the nuclear power plant.

An error here, Southern Company could spell catastrophe for the residences of Shell Bluff, Georgia.

Therefore, two contentions we believe merit exploration are that, one, the proposed modification Southern Company creates an extremely dangerous situation rather than mitigating it.

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

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

Both NRC staff and Southern Company contend that our contentions cannot be admitted because they challenge rules of basic design of the AP1000 reactor.

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

Likewise, Southern Company answers our Petition saying the two contentions in the Petition all going to attacks on the AP1000 DCD, the Design Control Document, analysis underlying the addition of two new igniters at the in-containment refueling water storage tank roof vents, that's the Southern's answer at three.

Both documents attempt to drive Petitioners' contention into the indefensible corner of challenging the AP1000 Design Control Document and a rule change.

However, Petitioners have studiously avoided these areas, totally cognizant of the finality provisions of federal regulations at 10 CFR 52.62(a)(1).

First, we specifically did not challenge the initial 64 igniter locations of the AP1000 design, only the two new ones. This placement is based solely on so-called engineering judgment.

Southern Company's original submittal had been accompanied by hard analysis our argument would have been more difficult to make.

For example, there are flame propagation analysis techniques that could have and should have been used.

Second, we did not compare the AP1000 to Fukushima Daiichi except to note that at Daiichi Unit 1, the deflagration appears to have begun at the top floor on Daiichi 3, the detonation appears to have been initiated in the basement.

Hence, the need at Vogtle for a detailed analysis rather than a judgment call.

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

How to process low containment failure are grey in this matter. And the AP1000 chimney effect makes it even worse. So, a thorough analysis is required rather than an engineering judgment.

Fourth, Section (c)(5) of 10 CFR 50.44 on structural analysis applies to the AP1000 and states, quote, an applicant must perform an analysis that demonstrates containment structural integrity, end quote. However, there was no analysis.

Note, the law says must perform. Engineering judgment is not that same as analysis.

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

But Southern Company has shown that denotation is likely -- not unlikely. In fact, the reason for the license amendment request in the first place was that they believed excessive hydrogen might actually accumulate. The burden is on that to show a

solution not to use engineering judgment.

Finally, under 10 CFR Part 52, of course, all nuclear power plant construction must be in accord with the plant design currently licensing basis as well as the applicable statutes and regulations.

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

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

For guidance, the Nuclear Regulatory Commission has used COL Interim Staff Guidance 025 during construction of plant license under Part 52.

The Interim Guidance will be included in the next update of Regulatory Guide 1.187, Guidance for Implementation of 10 CFR 50.59 Changes, Tests and Experiments.

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

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

Are you claiming that that instruction was not complied with?

MR. ZELLER: What we're saying is that the addition of the hydrogen igniters, the placement of them, is absolutely critical and that engineering judgment used to comply, as you have pointed out, as close as feasible is based on engineering judgment.

In other words, a best guess by an engineer, not actual tests which were demonstrations which would show that that is the proper location.

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

CHAIRMAN SPRITZER: Well, are you saying that these could have been placed in compliance with that requirement in Table 6.2.4-6, they could have

been placed somewhere else other than where they were?

MR. ZELLER: Two additional igniters?

CHAIRMAN SPRITZER: Yes.

MR. ZELLER: That's right.

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

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

CHAIRMAN SPRITZER: All right.

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

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

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

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

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

MR. ZELLER: We cannot tell that. This is based on a best guess scenario, not an actual analysis. Because that's why we raised the issues of previous deflagration impacts and hydrogen igniters failures is that this must be done properly at the plant Vogtle.

The license amendment request for LA-2 calls into question where that should be. In other words, there's an interpretation as to close as feasible and where the hydrogen emission point can be defined.

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

JUDGE ARNOLD: So, this changes certainly not resulting in hydrogen igniters further from the IRWST vents, correct?

MR. ZELLER: What's that?

JUDGE ARNOLD: Okay, thank you.

MR. ZELLER: The question exactly you put

your finger on it.

JUDGE TRIKOUROS: Well, I'd like to follow up on that.

You know, we're talking about hydrogen that's in the IRWST that the only release for that hydrogen would be through the hooded vents or the roof vent, correct?

MR. ZELLER: That's right.

JUDGE TRIKOUROS: There are igniters in the IRWST at various other locations. There are igniters, if I remember correctly, about 30 feet above the roof vents along the doghouse wall.

Just in terms of logic, it doesn't appear that there would be any analysis that would tell you to place them further away from the IRWST or further into the IRWST.

So, what type of analysis are you referring to?

MR. ZELLER: The --

JUDGE TRIKOUROS: It's a 3-D mixing analysis of some sort? I don't understand.

MR. ZELLER: Well, that's an engineering question and I think that is precisely what is lacking here. I mean, these are technical questions which we would hope to bring up with the assistance of our

technical expert and nuclear engineer himself, Arnie Gundersen.

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

It was Southern Company, in their request which said that design reviews in 2011 identified a credible scenario in which the applicable plant damage state meets the core damage frequency cutoff to be considered as part of the severe accident analysis.

It's convoluted, but what it says is that this vent is going to suck it out.

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

I get the impression, and I will ask this question later, that perhaps the partial failure of ADS 4 -- Stage 4 valves results in a more significant release to the -- than the other vents.

But, I don't think that there's anything

unusual going on here. I still don't quite understand a number of things regarding those vents, but I'll ask that later.

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

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

JUDGE TRIKOUROS: Well, what I don't understand is what this analysis is that you're referring to that might tell you to put the igniters either further away from the IRWST or further into the IRWST.

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

MR. ZELLER: Well, for example, the frame complication analysis could have been done in this case. It was not done, so that is one potential technical analysis that should have been done which

was not. That would provide a basis for determination of where the additional igniters would be located. That's just one example.

CHAIRMAN SPRITZER: Well, if I understand the position of the staff and Southern Nuclear, it's basically, look, we've done all this analysis from the original 64 igniters, so we don't need to repeat it here because we're only adding two additional igniters and we're following the criteria that was developed for placement of those -- for placement of any igniters in the containment. But they happen to be near the IRWST or somewhere else.

What's wrong with that argument?

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

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

MR. ZELLER: The Design Control Document calls for 64 igniters. So, we're not challenging the placement of the 64 igniters.

What we have raised in our contentions is

the two additional hydrogen igniters which were identified by the applicant, by Southern Company, as being necessary because of a credible scenario for hydrogen deflagration from a fire within the containment structure which would add to the pressure within the reactor building which is also -- which is already very close to its upper limits as currently designed.

JUDGE TRIKOUROS: Well, when we first reviewed your Petition, the words are very clear in the -- in your explanation of your contention that the -- what you referred to as the proposed solution which is the two additional hydrogen igniters introduced as a new threat to the already vulnerable AP1000 containment.

And, I have not been able to understand what that new threat is. So, perhaps you can explain that to me now.

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

So, there are uncertainties with regards to hydrogen and there are omissions in terms of where

hydrogen comes from within the reactor shell which were overlooked or not even addressed by Southern Company in their license amendment request.

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

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

And, with respect to Fukushima, we'll discuss this later, I believe. But, fundamentally, it isn't clear at all what the applicability of the Unit 1 versus Unit 3 explosion locations have anything to do with this particular case.

And, I would like to hear that, if I could, as well.

You know, the secondary -- the reactor building at Units 1 or 3, Fukushima or not, have no hydrogen control at all. Therefore, the minute you reach a low level of flammability point, it's going to explode. It could be anywhere at any time.

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

MR. ZELLER: Well --

CHAIRMAN SPRITZER: Mr. Zeller, maybe it

would be useful, I mean, what we're all trying to understand if that -- get some better idea, or at least I'm trying to understand and I think Judge Trikouros is also, what specific additional analysis you think should take place here?

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

MR. ZELLER: Well, I would welcome that, Your Honor.

But, in brief, rather than performing a rigorous gaseous diffusion and flame propagation analysis, Southern Company chose to place two hydrogen igniters, the two extra igniters, in what they say a likely are by relying on the personal engineering judgment of its engineers.

From a chemical standpoint, I'm told, hydrogen has been known to stratify. It could cause a great explosion. Westinghouse and Southern Company proposed igniters are being supplied to prevent. That is the basis for a much more rigorous analysis we feel is warranted.

It's the basis of contention two which targets the failures by Southern Company in its

license amendment at plant Vogtle.

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

MR. ZELLER: And it supports the contentions Southern Company's license amendment assumes concentration of hydrogen that is uniform throughout the AP1000 in the subcompartments.

The company hypothesizes that the only source hydrogen is emitted from the reaction between zirconium and water. Other sources of hydrogen production are ignored.

Radiolytic decomposition of water has been ignored as a source of both hydrogen and oxygen.

And, finally, Southern Company's analysis ignores the possibility that an igniter can create a flame that blows back due to the in-containment refueling water storage tank roof vents along with the steam generator doghouse wall into the subcompartment causing a serious detonation. The phenomenon is not speculative, such back flow did occur after Fukushima Daiichi.

JUDGE TRIKOUROS: Yes, I understand what you're saying and we will get to all of that. But, we're, right now, dealing specifically with the question of what the new threat is that's posed by

these two igniters and the question of what analysis would be necessary to place these two igniters other than the very logical argument that's been provided by Southern Nuclear.

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

Let me be more specific. With respect to the analysis further away from the IRWST, the LAR itself specifically says that the region between the IRWST vent and the igniters that are located 30 feet above it and not be evaluated to determine, for example, if those igniters 30 feet above it would be effective.

And, the reason for that is they, in their words, the region is too complex to be accurately modeled.

So, since they can't determine if those two igniters that are up there would be effective, they decided to put them at the release point on the IRWST. Now, all of that makes sense.

It's not clear to me what an analysis -- what analysis you would do, especially since the region above it is too complex to be accurately

modeled. Therefore, what that means, to me, is that it would not be able to discern individual igniters effectiveness, which is I think what they're saying. But, we'll talk about that later.

MR. ZELLER: So --

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

MR. ZELLER: In my work with Blue Ridge Environmental Defense League on air pollution and air pollution modeling at various industrial sites, the Savannah River site and coal-fired power plants and smaller industrial sources, we have run computer model, gassing dispersion models which are designed to cope with simple situations, area sources, volume sources, complex sources, hilly terrain and then you cover variables within the realm of computer analysis.

Computer analysis is done on a routine basis and so, I would call upon our technical expert at this point, Mr. Gundersen, to point out what other type of analysis might could actually be done.

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

CHAIRMAN SPRITZER: Mr. Zeller, if you want to talk with him, as I suggested, that's fine.

But, we want to hear from you. We don't want him testifying. As we said, this is not an evidentiary hearing.

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

But, if you want to talk to him off the record, mute your phone in order to do that.

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

CHAIRMAN SPRITZER: What I'm trying to say is, if there is some part of the record Mr. Gundersen would like to cite to us, you can talk to him about it and he can tell you and you can tell us.

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

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

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

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

JUDGE ARNOLD: All right, very good.

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

CHAIRMAN SPRITZER: We can --

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

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

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

CHAIRMAN SPRITZER: Mute what phone?

MR. ZELLER: The audio that you are hearing?

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

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

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

MR. ZELLER: Can you hear me now?

CHAIRMAN SPRITZER: Yes.

MR. ZELLER: Can you hear me now?

CHAIRMAN SPRITZER: Yes.

MR. ZELLER: My phone will not do that.

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

MR. ZELLER: I have a telephone which helps me hear because I have a hearing impairment and it --

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

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

(Whereupon, the above-entitled matter went off the record at 10:12 a.m. and resumed at 10:19 a.m.)

CHAIRMAN SPRITZER: All right, Mr. Zeller, it sounds like you're back with us as is everyone else.

Let's go back on the record.

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

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

MR. ZELLER: Yes, I can.

CHAIRMAN SPRITZER: Very good.

MR. ZELLER: Thank you, Judge Spritzer, I appreciate that.

And, okay, so I have talked to Mr. Gundersen and there are actually four points.

The question that you asked about the what new threat has been identified is the wrong question. The threat has been identified by Southern Company, and I read to the design reviews in 2011 identified a credible scenario in which that typical plant damage meets the core damage frequency cutoff.

The job at hand is to mitigate the new leakage path that the 64 igniters do not resolve.

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

So, the assumption is that it is pure hydrogen. But, there's a stoichiometric mixed caused by the hydrolysis of water, H2O, two hydrogens per

oxygen. So, it is a stoichiometric mix of hydrogen and oxygen which is highly flammable.

And, so, that is in part of the analysis that would need to be done has not been done by Southern Company.

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

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

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

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

MR. ZELLER: No.

JUDGE ARNOLD: Was the flame propagation analysis performed to placing the original 64

igniters?

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

JUDGE ARNOLD: Maybe he needs time to answer that.

CHAIRMAN SPRITZER: Is that something you want answered?

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

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

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

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

MR. ZELLER: No, Your Honor.

CHAIRMAN SPRITZER: All right.

MR. ZELLER: The point of our contention

--

CHAIRMAN SPRITZER: Only the two new igniters?

MR. ZELLER: Correct.

CHAIRMAN SPRITZER: All right.

And, what specifically -- so you say additional analysis ought to be done. That seem to be your primary argument. Is there any other problem you have with the placement of the two new igniters?

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

CHAIRMAN SPRITZER: Okay. All right.

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

Now, the evolution transferred and combustion or hydrogens or the severe accident are topics of interest to nuclear engineering for which there are few experts worldwide.

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

So, along the lines of his qualifications, can you tell me, has Mr. Gundersen ever taken any courses dealing with or performing experimentation or

analysis of hydrogen generation during a reactor accident?

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

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

MR. ZELLER: Again, we would be happy to provide that information.

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

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

JUDGE ARNOLD: Well, basically --

MR. ZELLER: We would be happy to provide further documentation and explanation in detail of Mr. Arnold's qualifications as a nuclear reactor operator. But for his experience, I cannot tell you off the top of my head what he has done, what courses he has attended in the course of that four decade career as a nuclear operator.

But, we're happy to do that. And, in fact, I would ask this Court's permission to provide that information as soon as this proceeding is ready for it.

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

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

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

JUDGE ARNOLD: Okay. On your Petition, pages three to five, you address standing. Now, my understanding of it, you know, you cite the 10 CFR 2.309(d) for the requirements for standing.

But, it appears that you're saying your

members have standing both under 309(d) and both by proximity. Is that a correct understanding of the Petition?

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

JUDGE ARNOLD: Well, okay, that would be standing under Section 2.309(d) where you supply the name, the nature of their property and their losses and all that.

Do you also have a proximity argument for their standing?

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

JUDGE ARNOLD: Yes, you say on page four of your Petition, quote, as in Vermont Yankee, the LAR is an action with obvious potential for offsite consequences. The purpose of the hydrogen ignition system is to prevent levels of hydrogen created by a reactor accident from reaching concentrations

sufficient to breach the containment.

Granting of the LAR by the NRC would allow conditions to lead to unsafe levels of hydrogen.

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

MR. ZELLER: That's correct.

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

MR. ZELLER: Of course not.

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

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

JUDGE ARNOLD: IRWST. Okay.

MR. ZELLER: That's what I meant.

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

MR. ZELLER: Right.

JUDGE ARNOLD: Okay. On page seven -- 67 of your Petition, you emphasize the time that elapses between the licensee discovering the hydrogen problem and the licensee initiating a license amendment to correct that problem.

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

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

JUDGE ARNOLD: Okay. And these sites have a regulation requiring the licensee to notify the NRC staff of this hydrogen issue at a time sooner than the issuance of the LAR.

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

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

MR. ZELLER: No, I cannot.

JUDGE ARNOLD: Okay. Contention one states, quote, the proposed modification by the Southern Company creates an extremely dangerous situation rather than mitigating it, which makes me think that you are opposed to a license amendment that

makes things less safe and I can understand that.

But, can you cite to a rule stating all proposed license amendments must improve safety or at least are required to not reduce safety?

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

JUDGE ARNOLD: Yes, yes.

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

JUDGE ARNOLD: On page eight of the Petition regarding contention one, you state, quote, relying on an engineering judgment instead of rigorous testing and analysis would result in an unanalyzed condition that significantly compromises plant safety.

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

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

safe levels.

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

Now, can you explain to us what ignition sources caused the hydrogen combustions at Fukushima? Because, to my knowledge, they're still not identified.

And, how would analysis of their locations have prevented the hydrogen combustion events at Fukushima?

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

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

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

Our contention is that it has not been done properly. It is not supported by any kind of

evidence by Southern Company which is coming hat in hand for a license amendment.

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

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

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

JUDGE ARNOLD: Okay. On page ten of your Petition concerning contention one, you state, quote, the company has not done the prudent and required evaluation. And you list four evaluations, the applicability determination, safety, security

interface, a construction impact evaluation and a 10 CFR 50.59 like screening.

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

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

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

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

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

Can you point me to a requirement that an LAR include an evaluation of related historical

events?

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

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

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

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

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

MR. ZELLER: I am unaware of any other nuclear power station which has reached this juncture. So, I understand we may have perhaps gored the

engineer's ox by talking -- raising the issues in the way we did. But, engineering judgment is no substitute for analysis.

I think Mr. Gundersen is quite right about that.

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

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

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

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

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

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

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

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

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

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

And, it does place a cloud over what has been done and what is being done at plant Vogtle Units 3 and 4 in Shell Bluff.

So, the problem was created by others, not by Blue Ridge Environmental potentially in terms of the -- whether or not the questions -- unresolved

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

JUDGE ARNOLD: Right.

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

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

And, again, if allowed to go to further hearings, we would be able to explain that further.

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

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

MR. ZELLER: Yes.

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

MR. ZELLER: Please repeat the question?

I'm sorry.

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

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

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

So --

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

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

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

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

cover areas that's been covered.

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

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

You disagree with that statement? You think that that statement causes a problem if followed in the igniter placement?

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

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

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

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

going to go there now.

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

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

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

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

JUDGE TRIKOUROS: Well, I --

MR. ZELLER: That was one --

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

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

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

The solution is one which should relieve the problem and not cause additional problems. Any engineering question from building bridge to building an automobile introduces tradeoffs.

So, whether the hydrogen igniters should be located here or six inches further over in this direction is not sufficient to say, well, let's put it here because the rules say we just need to be near the hydrogen source and then just let go, we'll take the high most.

You've got to figure out where that should go into high interest and the interests of our members in Shell Bluff is that it be done properly because two reactors next to two more reactors presents even greater threat.

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

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

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

You indicate in your Petition that a growth containment failure from a detonation shockwave in a subcompartment is likely to occur.

Because the hydrogen igniter modification is poorly designed.

MR. ZELLER: Yes.

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

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

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

JUDGE TRIKOUROS: There's something unique about these two igniters that would cause a failure --

a gross failure of the containment in a like -- that it's likely? Can you enlighten me on that?

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

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

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

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

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

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

MR. ZELLER: My engineers did.

JUDGE TRIKOUROS: Okay, I understand that you perceived a difference. Now, I still don't understand what that difference is.

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

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

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

There's a pathway of flame propagation that's been identified, I think it's on -- in the Petition at somewhere, I think it's page 12 to 13, you say, Southern Nuclear's analysis ignores the possibility that the igniter can create a flame with low saturation. We talked about this for the IRWST.

Along the steam generator doghouse, is the concern there -- I don't understand the pathway, number one.

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

I don't quite understand that mechanism given that there are igniters everywhere at inlets and

outlets. So, I don't understand that particular pathway.

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

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

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

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

JUDGE TRIKOUROS: All right.

You had referenced 10 CFR 52.98(f), I don't think this question was asked, you had indicated that the applicant did not comply with -- or that specifically, the granting of the company's license amendment request didn't comply with 10 CFR 52.98(f).

Basically, 52.98(f) just says that there'd be an opportunity for a hearing. In this regard, we're in the middle of that right now.

I don't understand where the noncompliance

is.

MR. ZELLER: Okay, I'm not sure I'm hearing you right. You said 50 --

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

Any modification to, addition to or deletion from the terms and conditions of a combined license, including any modification to, addition of or deletion from the inspection assessed analyses or related acceptance criteria contained in the license is a proposed amendment to the license.

There must be an opportunity for hearing on the amendment.

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

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

JUDGE TRIKOUROS: Okay. Let me go on.

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

JUDGE TRIKOUROS: So, as I understand it then, you are not challenging the general use of

igniters, only the specific two igniters?

MR. ZELLER: Correct.

JUDGE TRIKOUROS: When you say that the containment will fail from this deflagration or detonation that will come only from these two igniters, are you saying -- are you evaluating that on the basis of design pressure or on the basis of the higher as the surface level pressures, like service level C pressure that's typically used for PRAs and severe accidents?

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

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

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

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

MR. ZELLER: That's a question I'd like to refer to my engineer. But, the basic premise is that

the pressure within the reactor is already very close to the limit and the addition of an unaccounted for or an unanalyzed condition, which this is, could push the containment structure past its design. And, that's reflected, again, in the -- in Southern Company's license amendment request.

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

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

MR. ZELLER: It is my understanding that the containment is put at risk by this unaccounted for and unanalyzed condition. In my understanding of it, after having talked to the experts in this area, some of the particulars you mention, I think would bear further explanation, certainly, in order to satisfy

that question. But, that is my understanding and that's the basis on which we are moving forward.

JUDGE TRIKOUROS: Right, thank you.

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

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

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

Does BREDL dispute this conclusion?

MR. ZELLER: Yes.

CHAIRMAN SPRITZER: On what basis?

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

CHAIRMAN SPRITZER: By who? Who told you that?

MR. ZELLER: Mr. Gundersen.

CHAIRMAN SPRITZER: All right. And,

you're saying we can look at his declaration and he will explain to us what kind of modeling he thinks could be done and why he disagrees with the company's position that it wouldn't be of any benefit?

MR. ZELLER: It's in the declaration.

CHAIRMAN SPRITZER: Yes.

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

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

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

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

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

LAR.

MR. ZELLER: There is a dispute and so, we believe that is part of the nature of admissibility of this contention. So, there is modeling which could be done by someone, not Southern Nuclear, if they have elected not to do it, if they just haven't found the people to do it, but our expert believes that modeling could be done of that complicated space. And, that's our position.

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

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

That was the purpose of the analysis that would have been used. That is the purpose that analysis would have been used.

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

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

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

We're already past 11:00, so we've gone from a half hour for your presentation to an hour and a half.

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

MR. ZELLER: All right, thank you.

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

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

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

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

And, we've been thinking we'd discuss the AP1000 certified design was certified for us by the Nuclear Regulatory Commission in 2011.

The COL relied on the design certification and all of the applicable technical information in the COL to align the hydrogen zone was referenced from the design certification.

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

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

Just repeating, as Your Honors discussed earlier, involves the contention admissibility and standing with regard to the petition challenging the referenced license amendment.

The substantive issue here is whether BREDL has shown it does have standing in accordance with 2.309(d) and whether BREDL has offered an admissible contention in accordance with 2.309(f).

It's Southern Nuclear's position that BREDL has satisfied neither requirement.

At a fundamental level, both contentions one and two are inadmissible because BREDL has not offered any challenge to the fact that Southern Nuclear is locating these two additional igniters explicitly consistent with the certified design criteria for igniter location.

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

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

First contention one to have -- include statements that are otherwise challenges to the AP1000 design.

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

The AP1000 design included a hydrogen

analysis showing uniform concentration below ten percent and showed construction had reinforced the 10 CFR 50.44.

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

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

In addition, BREDL challenge did not set the hydrogen analysis by arguing that additional consideration should have been included such as additional sources of hydrogen other than 100 percent fuel cloud, low water reaction accident.

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

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

While the Petition appeared initially to directly claim that the events at Fukushima were the basis for the challenge to the license amendment request, we understand that he's already clarified

this morning that BREDL's position is simply that the Fukushima event illustrates the unpredictability of hydrogen behavior.

The Fukushima event has been considered by the Nuclear Regulatory Commission, in particular, considered whether the hydrogen aspect of that event should change the AP1000 design certification or the COLD.

The Commission's various proceedings including design certification amendment proceedings rulemaking, this COL proceeding and the generic considerations of the task force report has concluded that there are no changes necessary to hydrogen control requirements to the AP1000 DCD.

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

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

The license amendment request clearly states that Southern Nuclear determined that the additional igniters were consistent with the existing

hydrogen igniter location and clearly states that Southern Nuclear considered the addition of the original analysis to determine that no additional analysis was necessary because those original analysis were unchanged.

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

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

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

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

Therefore, the contentions one and two are based uneventful.

Finally, with regard to standing, Southern Nuclear's position has been BREDL has failed to articulate an obvious potential for offsite consequences with respect to this license amendment request or articulate their traditional standing elements and, therefore, is not entitled to standing in this proceeding.

Thank you.

JUDGE ARNOLD: Okay, I'll start out.

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

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

MS. RONNLUND: Yes.

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

MS. RONNLUND: The original analysis in the AP1000 DCD included a flame propagation analysis. However, that analysis was limited to igniters located

near walls because the issue being interoperator of the thermal load on a wall.

In this case, since the igniters are proposed to be located on the IRWST vents, nowhere near any walls where a special issue would be relevant, there is no effect on the original flame propagation out load.

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

MS. RONNLUND: Yes.

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

MS. RONNLUND: Yes, that's correct.

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

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

MS. RONNLUND: If I need to, I may confer

with our subject matter expert. I think I can answer your question at this point.

No, historical events uniquely would not have a direct effect on igniter locations. The Commission considered historical events in developing a rule for hydrogen control. And, those rules are embodied in the criteria in 41 and in the 10 CFR 50.4.

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

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

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

MS. RONNLUND: I am not, Your Honor.

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

So, is it correct that the ignition igniter location criteria are part of the DCD and it

-- and they received approval from the NRC?

MS. RONNLUND: Yes.

JUDGE ARNOLD: Okay. And, on page ten of the Petition, Petitioners asserted that there is a requirement four analysis, the applicability determination evaluation, a safety security interface evaluation, a construction impact evaluation and a 10 CFR 50.59 like screening.

Do the igniter location criteria include any of these requirements?

MS. RONNLUND: No, they do not.

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

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

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

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

But, the 50.59 like evaluation must be performed and then, if it's determined a LAR is

necessary, one would be submitted.

So, to that extent, that requirement does exist and was followed here because we, in fact, have submitted a license amendment request.

The other issues are not requirements for license amendment requests.

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

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

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

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

MS. RONNLUND: Yes.

JUDGE ARNOLD: So, basically, this is

saying that you would expect these new igniters to have some effect approximately 5.8 times 10^8 times per reactor year?

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

So, the use of these igniters would actually be something beneath that.

JUDGE ARNOLD: Even less, okay.

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

MS. RONNLUND: No.

JUDGE ARNOLD: On page ten of your Answer, this is the table in the DCD about locating the igniters.

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

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

JUDGE ARNOLD: Okay. So, now you're basically making the actual igniter design closer to

what is recommended in the DCD?

MS. RONNLUND: Yes.

JUDGE ARNOLD: Okay. Is there anything that the Petition said that you would like to comment on?

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

JUDGE ARNOLD: Of course.

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

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

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

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

So, Southern Nuclear is simply requesting

consistent with the design certification criteria to add igniters to those particular which makes it consistent with the criteria.

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

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

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

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

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

First is that the license amendment request is in the context of the existing licensing basis. And so, the design certification and analyses as well, include a description of the other igniters, particularly in discussion about the IRWST which explains there are igniters located in the IRWST but there's potential for that to be inert such as the igniters wouldn't ignite.

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

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

In addition to that, Southern Nuclear also would like to clarify that the criteria in the DCD does not state that historical hydrogen must be found to be exactly for a fact.

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

And so, Southern Nuclear's using engineering judgment to put the igniters as close to potential flow might be even possible is absolutely consistent with the learning and the intent of the criteria in the DCD.

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

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

Did I misunderstand your position on that?

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

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

CHAIRMAN SPRITZER: One technical question, which provision of the Design Control

Document is applicable to Vogtle Units 3 and 4? Is that Revision 19?

MS. RONNLUND: Yes.

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

MS. RONNLUND: Just a moment, Your Honor.

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

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

CHAIRMAN SPRITZER: Okay.

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

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

igniters?

MS. RONNLUND: I'm going to give an initial answer. To go any further, I'll need to discuss with my igniter experts.

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

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

CHAIRMAN SPRITZER: All right.

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

Is this the only scenario in the PRA will -- that results in hydrogen in the IRWST?

MS. RONNLUND: No, it's not referencing this is a bounding scenario.

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

MS. RONNLUND: That is my understanding,

yes.

JUDGE TRIKOUROS: Okay. So, how did this new threat lead to the need for the roof vent igniters? A determination made analytically that the four existing igniters were inadequate to handle this design -- this new threat?

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

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

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

JUDGE TRIKOUROS: In previous scenarios where hydrogen was released to the IRWST, and given my understanding of the open and closing set points for release for the hooded vents and for the roof vents,

the roof vents would basically be where all the hydrogen would be coming out of the IRWST with potentially none actually coming out of the hooded vents for any scenario.

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

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

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

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

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

MS. RONNLUND: I'd have to -- I'm afraid I lost a little at the end of your question, Your Honor. You said now as a result of this change, I'm a little confused on that part, can you clarify what this needed change you were referring to was?

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

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

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

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

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

Has anyone at SNC at least considered

that?

MS. RONNLUND: Your Honor, may I have a moment to confer with our expert?

JUDGE TRIKOUROS: Yes, thank you.

(Whereupon, the above-entitled matter went off the record at 11:50 a.m. and resumed at 11:51 a.m.)

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

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

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

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

MS. RONNLUND: Yes. Yes, Your Honor.

JUDGE TRIKOUROS: But, they did consider

the change in the hydrogen flow situation?

MS. RONNLUND: Yes, I would like to clarify that that consideration of after the plume was seen in the different model and that issue was identified, that consideration was done. But this -- what's within the scope of this license amendment request, it's simply the addition of two igniters.

And, it's clear that those two igniters do not impact the original analysis. So, Southern Nuclear considered both, I think what you're referring to which is the initial issue and then also the impact of two igniters completely, in either case, would the original analysis be changed.

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

MS. RONNLUND: Yes.

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

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

JUDGE TRIKOUROS: All right.

This modification is only being made to Vogtle?

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

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

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

JUDGE TRIKOUROS: As a what, I'm sorry?

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

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

MS. RONNLUND: Depending if both license amendment requests are issued, yes.

JUDGE TRIKOUROS: All right.

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

MS. RONNLUND: No.

JUDGE TRIKOUROS: Is there anything different about the two hydrogen igniters that are

being discussed here versus the other hydrogen igniters anywhere, in any of the 64?

MS. RONNLUND: No, and, in fact, again, it's stated in the DCD specifically consider igniters and the danger of hydrogen in the IRWST, I know the these are involved got the same design certification.

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

MS. RONNLUND: No.

JUDGE TRIKOUROS: Can hydrogen igniters cause a back flow into any subcompartments of containment?

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

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

MS. RONNLUND: Your Honor, I can refer to the DCD section that discusses the hydrogen igniter subsystem which is 6.2.4.2.3. And, it explains that the igniters were done -- were placed based on evaluation of hydrogen transport in containment and hydrogen combustion characteristics. And, that their number and location was selected considering hydrogen behavior.

And, that process for locating the igniters was reviewed by NRC staff and design certification in its efforts.

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

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

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

So, therefore, all of these phenomena that

we're discussing regarding other sources of hydrogen and oxygen in terms of contention two, specifically, are not considered for that reason, that the -- at least in Section 19. Is that correct?

MS. RONNLUND: I believe they're not considered and I would have to reference Section 19 to confirm. But, I think the reason they're considered is because they're not required by 10 CFR 50.44. 50.44 is what set out the accident scenario prior to being considered and added the 100 percent to apply to water interaction and that would review to AP1000 DCD analysis.

So, I think the answer to your question is the reason that additional sources are not considered is about radiation.

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

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

JUDGE TRIKOUROS: All right.

The partial failure of ADS Stage 4 has

other effects, not just IRWST effects in terms of such things as assuming the bulk of hydrogen is propagated into the free area of the containment volume. It has to be better mixed and that sort of thing as opposed to dead ended subcompartments.

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

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

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

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

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

As to your longer question whether may be any other impacts in the scenarios that's in other systems, I can -- I'm not prepared to answer that question at this time. I'm not aware of any, but I'm

not prepared to answer that question fully.

JUDGE TRIKOUROS: All right.

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

MS. RONNLUND: Your Honor --

JUDGE TRIKOUROS: -- of the staff later.

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

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

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

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

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

JUDGE TRIKOUROS: All right. But, the criteria were very specific where they said the hooded vents, and identified four.

MS. RONNLUND: One that --

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

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

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

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

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

MS. RONNLUND: Yes.

JUDGE TRIKOUROS: -- covered the addition

of the two roof --

MS. RONNLUND: Yes.

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

MS. RONNLUND: Yes, yes.

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

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

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

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

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

MS. RONNLUND: No, Your Honor, that's in the design certification that was Westinghouse submitted and was approved as part of the AP1000 DCD design certification. And then, Southern Nuclear

referenced that pre-design certification.

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

Are hydrogen igniters required to meet 50.44© and GDC-41?

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

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

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

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

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

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

JUDGE TRIKOUROS: All right, thank you.

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

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

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

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

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

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

So, there's actually two igniters to every

necessary location, which are controlled by different power sources.

So, there's a built in redundancy to avoid any kind of failure of one igniter or one power port. So, we know, in general, when it's an issue or a problem would not cause any offsite impact.

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

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

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

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

MS. RONNLUND: It was a conservative

decision to meet the criterion of design certification regarding location of igniters as close to the source as reasonably feasible.

But, the existing analysis that confirmed the current hydrogen control system in the AP1000 DCD meets our requirements and aren't changed. So, that analysis subject to finality.

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

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

MS. RONNLUND: Petitioner is required to make a showing sufficient to meet the requirement for standing. And, Petitioner made no offer or discussion

of the probability or likelihood or even how the scenario that they posit could occur.

So, Southern Nuclear referenced information included in the LAR where the possibility for reactor here is simply offered to show that the probability of this occurring is very low and to point out that Petitioner has not met its burden to show offsite consequence by offering any analysis that should an accident could occur.

CHAIRMAN SPRITZER: Of course --

MS. RONNLUND: So, while it may be more appropriate in general Petitioner to have offered some discussion about how likely such an accident is over the life of the plant, the use of this position was intended to point out the flaw that Petitioner asserted.

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

But, I'm not sure why they would be required to challenge or present a probabilistic risk analysis of the likelihood of the accident scenario that is sort of the prerequisite for the igniters

actually coming into play.

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

Are you saying they have to dispute the likelihood of a beyond design basis accident scenario probability that you've given in order to establish standing?

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

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

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

CHAIRMAN SPRITZER: Well, as I understand the argument for the possibility of offsite consequences, it's the circular design to control hydrogen, if it doesn't work effectively, you don't

have adequate control of hydrogen, therefore, you have at least potential for offsite consequences.

I understand you dispute that, but why is that enough for purposes of standing given that the obvious purpose of this whole system is to prevent damage to the containment or at least part of it?

MS. RONNLUND: I think Southern Nuclear understand where the Board is coming from. On this particular issue, though, it has been clarified multiple times on Mr. Zeller this morning, the entire hydrogen control system is not at issue.

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

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

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

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

I understand your position that, by themselves, they not enough to create an obvious potential for offsite consequences, but they seem to dispute that.

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

MS. RONNLUND: The Calvert Cliffs case --

CHAIRMAN SPRITZER: I don't think that --

MS. RONNLUND: -- we have a year or --

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

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

CHAIRMAN SPRITZER: That was kind of the issue that was raise there. Let me ask this, are you aware of any case that is either from the Commission

or Supreme Court or Federal Court of Appeals that's ever said in order to establish standing you have to show a probability of an accident, some kind of release into the environment that passes a specific numerical threshold?

MS. RONNLUND: I'm not aware of such a case and that's not something in our position. Our position is simply that the injury or offsite consequences have to meet the probable and cannot be based on mere speculation.

CHAIRMAN SPRITZER: All right.

I have nothing else. Anything else?

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

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

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

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

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

And, I don't think, you know, if I don't get that answer, I'm not sure that it means much here, but that is -- and I will ask that question to the staff as well.

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

JUDGE TRIKOUROS: Thank you.

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

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

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

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

MS. RONNLUND: There was the available information is not -- the modeling is not

sophisticated enough to show any more detail in a particular pathway. So, it only shows the existence of hydrogen but cannot be used to show particular pathway. It can only show the existence of hydrogen in certain areas.

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

MS. RONNLUND: Yes.

JUDGE TRIKOUROS: All right, thank you.

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

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

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

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

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

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

CHAIRMAN SPRITZER: How long do we have it until?

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

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

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

Mr. Irvin?

MR. IRVIN: Good afternoon, Your Honors.

Again, my name's Ian Irvin and I'm representing the NRC staff and will be addressing standing with the introduction of Marcia Carpentier who is representing the NRC staff as well.

She'll be addressing contention admissibility.

Based on the Petition and as articulated in our Answer, the NRC staff does not have standing of BREDL in this proceeding.

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

Thank you.

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

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

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

Regarding scope, the Petitioner's reply and statements today clarify their contention is not intended to challenge things that were set up by the AP1000 rulemaking.

That clarification eliminates a number of peripheral arguments in the original contention related the use of hydrogen igniters generally. The 64 igniters already in the certified design and general criticisms of the robustness of the AP1000 containment design.

The staff argues that these matters were outside the scope of the license amendment and,

apparently, the Petitioners agree.

However, the remaining claims in the contention still fail to satisfy the other requirements of 10 CFR 2.309(f)(1) regarding materiality, factual support and a demonstration of a genuine dispute with the applicant.

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

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

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

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

For example, the Petitioners argue that

the applicant failed to perform four specific analyses in its license amendment request.

However, these analyses, which are taken from the Interim Staff Guidance document mentioned by Mr. Zeller are not regulatory requirements in this instance. They are analyses to determine whether a proposed change to a licensed facility requires a license amendment and associated exemption.

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

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

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

I don't want to repeat all of the claims about the arguments regarding in our pleading, but the Petitioners did not explain and that's key to, you know, in their pleadings, they do not explain how the claims to the license amendment are correct under

consideration here.

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

And, both fail to satisfy other conditions of 10 CFR 2.309(f)(1) as well, especially with regard to materiality and factual support.

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

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

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

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

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

Neither of the claims related to the analyses of the generation of hydrogen containment as

well as claims related to containment integrity under severe accident conditions.

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

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

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

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

These include analyses related to sources of hydrogen other than the reaction between zirconium and water, other sources of hydrogen which the Petitioners don't specify, radiolytic decomposition of water and core concrete interaction and sources of

hydrogen and oxygen.

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

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

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

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

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

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

MR. IRVIN: Sure. We believe that for the

Petition and associated documents, when taken -- when construed in favor of the Petitioners, has stated a scenario where there may be an obvious potential for offsite consequences.

JUDGE ARNOLD: Okay. Let me refer you to page 18 of your Answer in which you say, the hydrogen control system as a whole was analyzed extensively at the design certification stage for the AP1000 and the analysis was incorporated by reference at the combined license stage for the VEGP Units 3 and 4.

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

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

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

MR. IRVIN: Again, because we only look at the Petition on face value concerns standing, because of the lower bar, we accepted what the Petitioner said

in the Petition and the standing declaration just at face value.

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

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

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

MS. CARPENTIER: Well, proposed license amendments have to meet all regulatory requirements. It's in that one does meet regulatory requirements or that causes a new hazard, that would be dealt with in the staff's review.

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

JUDGE ARNOLD: But, is there a requirement that a license amendment not determent safety?

MS. CARPENTIER: Your Honor, we found some citations relevant to your question, it is in Appendix

B, the AP1000 design certification to Part 52, Roman Number XIII, Number 4.

And, that says, the Commission will deny a request for an extension from Tier 1, which is what we're dealing with here, if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design.

That's for exception from Tier 1 information for the AP1000.

JUDGE ARNOLD: Okay. So, is it significant degradation to safety, it will be rejected. But, that's suggests that there's no clear requirement that a license amendment not detriment safety in any way.

You could hypothesize a situation in which there would be a slight detriment in safety and still approve a license amendment?

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

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

concentrations of hydrogen.

Isn't placing the igniters near regions of excess hydrogen desirable to produce the combustion at as soon as possible time?

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

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

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

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

(Telephonic interference.)

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

JUDGE ARNOLD: Okay. That was my next

question.

Since the Petitioners specifically point to Fukushima, has the hydrogen combustion events at Fukushima been considered by staff regarding whether they would support changes to any hydrogen control rules?

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

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

JUDGE ARNOLD: Okay, thank you.

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

There's a statement in there that you quote referring to boiling water reactor facilities

with Mark I and Mark II, by the way, for the Court Reporter, that's the word Mark, M-A-R-K, Mark I and Mark II containment structures are required to operate their containments with inerted atmospheres.

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

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

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

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

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

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

to unmute yourself.

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

CHAIRMAN SPRITZER: Oh, I'm sorry. Go ahead.

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

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

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

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

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

accurate?

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

They looked at local concentrations in that particular design and, apparently, decided that that was the correct way to go. And, we evaluated accordingly, but we are not privy to their decision there.

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

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

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

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

determination?

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

CHAIRMAN SPRITZER: All right.

(Whereupon, the above-entitled matter went off the record at 12:41 p.m. and resumed at 12:41 p.m.)

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

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

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

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

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

CHAIRMAN SPRITZER: So, that sounds like that's also a judgment call that the licensee and the staff make, is that correct?

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

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

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

MS. CARPENTIER: About hydrogen igniters particularly?

CHAIRMAN SPRITZER: Yes.

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

JUDGE TRIKOUROS: Can you hear me?

MS. CARPENTIER: Yes.

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

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

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

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

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

The FDR for this license amendment request has not been published yet. So, I'm not sure what else I can say about that.

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

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

JUDGE TRIKOUROS: Yes, I understand.

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

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

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

JUDGE TRIKOUROS: Yes, that's fine.

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

This change to the plant, it's still not affecting the DCD igniter placement criteria, right?

MS. CARPENTIER: No, it is not.

JUDGE TRIKOUROS: In the eyes of the staff?

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

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

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

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

JUDGE TRIKOUROS: Okay.

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

MS. CARPENTIER: Yes, that will be.

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

Thank you.

CHAIRMAN SPRITZER: All right, Mr. Zeller, you reserved ten minutes. Obviously, we went well beyond the half hour that you had. We'll allow you the ten minutes of rebuttal if you have any further to add.

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

Go ahead.

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

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

Is that there is no clear comment that a change not determent safety, that is, cause a numerical decrease in the safety.

I've felt that and others that I work with have felt that for some time, it is quite refreshing

to hear it come from a member of the Atomic Safety Licensing Board and we will remember that.

And, let me just conclude with a couple of items after hearing the discussion that the Blue Ridge Environmental Defense League disputes in its entirety Section 4.3, pages 16 and 17 of Southern Company's request for a license amendment and exemption, that is LAR-15-003.

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

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

There seems to be at least a question raised that there are even hydrogen igniters necessary which does seem to be a backing up from what Southern Company had posited in their license amendment request, is that the design review identified a scenario which the plant damage meets core damage frequency cutoff to be considered this part of the

severe accident analysis.

The process for modifying their licensing basis is set forth in 10 CFR 52.98(f), the licensee requesting amendment must perform the applicability determination, safety, security interface evaluation and construction impacts evaluation and the afore mentioned 50.59 like screening evaluation.

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

Under 50.54, that is Combustible Gas Control, as to whether it applies, in the footnote 50.44, number two, it says the requirement of this paragraph apply only to water-cooled reactor designs with characteristics such that the potential for

production of combustible gases is comparable to light-water reactors designs license as of October 2003.

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

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

The addition of two -- oh, pardon me.

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

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

The modeling of the enclosures above the

integrated storage water -- integrated storage water tank is either too complex to model or it wasn't too complex but they elected not to.

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

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

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

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

So, I do look forward -- I do appreciate the opportunity to address these questions and we look forward to resolution of these issues in the interest

of public safety.

Thank you.

CHAIRMAN SPRITZER: Thank you.

All right, all right, we wrote, Mr. Zeller, you had earlier offered to provide some additional information on Mr. Gundersen's qualifications. We'll allow you to do that. How much time do you think you need for that? Hopefully, not much.

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

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

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

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

MR. ZELLER: Yes, sir.

CHAIRMAN SPRITZER: To the extent it may be relevant.

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

MS. CARPENTIER: No, Your Honor.

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

MS. RONNLUND: No, Your Honor.

CHAIRMAN SPRITZER: All right.

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

JUDGE TRIKOUROS: I just wanted to clear up one thing. I had mentioned earlier the standing integrity evaluation you've done with and without hydrogen igniters or at least there was a statement to that, it applied only in PRA space, not in licensing space, so we can ignore it.

MS. RONNLUND: Thank you.

CHAIRMAN SPRITZER: All right, does anyone else have anything further they'd like to raise at this time?

Hearing no takers, we will adjourn. As far as our ruling, we certainly intend to comply with the 45-day requirement and hopefully, we'll actually be somewhat earlier than that. But, in any event, we will get it out, certainly do our very best to get it out on schedule. And, if somehow our -- that doesn't

work out, you will see an appropriate Order from the Board.

Thank you for your participation and we are now adjourned.

(Whereupon, the above-entitled matter went off the record at 12:59 p.m.)