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NUCLEAR REGULATORY COMMISSION

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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 No.

SOUTHERN NUCLEAR OPERATING : 52-011-ESP

COMPANY : ASLBP No.

: 07-850-01-ESP-BD01

(Early Site Permit for :

Vogtle ESP Site) :

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Tuesday, March 24, 2009

Augusta Technical College

Waynesboro/Burke Campus Auditorium

216 Highway 24 South

Waynesboro, Georgia

BEFORE:

G. PAUL BOLLWERK, Chair, Administrative Judge

NICHOLAS G. TRIKOUROS, Administrative Judge

DR. JAMES F. JACKSON, Administrative Judge

APPEARANCES:

- On Behalf of the Applicant:

M. STANFORD BLANTON, ESQ.

CHAD A. PILCHER, ESQ.

of:Balch & Bingham LLP

1710 Sixth Avenue North

Birmingham, Alabama 35203

(205) 226-3417

FAX 488-5879

sblanton@balch.com

KATHRYN M. SUTTON, ESQ.

of:Morgan, Lewis & Bockius, LLP

1111 Pennsylvania Avenue, N.W.

Washington, D.C. 20004

(202) 739-5738

ksutton@morganlewis.com

APPEARANCES: (CONT.)

On Behalf of the Nuclear Regulatory Commission:

PATRICK MOULDING, ESQ.
JODY C. MARTIN, ESQ.
SARAH W. PRICE, ESQ.
Office of the General Counsel
Mail Stop - O-15 D21
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
(301) 415-2549

T-A-B-L-E O-F C-O-N-T-E-N-T-S

EXHIBIT NO.	DESCRIPTION	MARK	RECD
SNC000084-MA-BD01	Amundson CV	M-2072	M-2074
SNC000085-MA-BD01	Vogtle ESP Part 5	M-2072	M-2074
SNC000086-MA-BD01	TSC White Paper	M-2072	M-2074
SNC000087-MA-BD01	Evacuation Time Estimate	M-2073	M-2074
SNC000088-MA-BD01	SSAR Chap 13	M-2073	M-2074
SNC000089-MA-BD01	Technical Support Center Drawing	M-2074	M-2074
SNC000090-MA-BD01	Letter regarding SNC Proposal Re CEOF	M-2074	M-2074
NRC000064-MA-BD01	Staff Pres 6	M-2076	M-2076
NRC000080-MA-BD01	Musico CV	M-2076	M-2076
NRC000067-MA-BD01	Staff Pres 9	M-2189	M-2190
NRC000068-MA-BD01	Staff Pres 10	M-2210	M-2210

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

(8:30:28 a.m.)

JUDGE BOLLWERK: All right. Let's go on the record, if we could, please. Good morning, everyone. We are here this morning for the second day of the mandatory or uncontested hearing for the Vogtle Early Site Permit, ESP, proceeding.

Yesterday, we heard three presentations relating to water use impacts, radiological impacts, and ground water impacts on safety-related structures. I should also mention, last night we did conduct a limited appearance session. We had about 16 or 17 people that spoke to us. We were here until about 8:30, so I think it was a very useful session for the Board.

As I mentioned, both the session on Sunday and Monday, we received a number of interesting comments from folks from the area, gave us a better sense of the local feeling toward the facility, the proposed facilities.

In terms of what we're here to do today, we're going to be starting in a second with the presentation on environmental impacts of alternatives, and a couple of things we should take care of administratively. I don't know how many of the

lawyers here have had the experience of arguing a case in the District of Columbia Circuit, but one of the things that you do not want to do in front of a panel of judges for the D.C. Circuit is touch the microphone. If you do that, you will be excoriated from the bench. Well, today we have a different protocol because of the way our mics are working. What you do need to do is tap on the microphone. It seems to get the mics attention and sort of boosts the volume. So, before you begin to speak, please try to remember, go ahead and tap the microphone. Just don't carry that over into the D.C. Circuit any time, or you'll be in big trouble. You'll find that out personally.

We also had -- well, overnight there were several exhibits that were filed. I guess SNC has updated or revised its Exhibit SNCR00083-MA-BD01, I believe, which is for Presentation Six?

MR. BLANTON: Yes, Your Honor. That's a totally non-substantive revision. We just pulled a citation out of it.

JUDGE BOLLWERK: Right. And then I think we also saw that you had -- we had asked you to check the status of your Exhibit 80, because we thought there were some citations that were there, that the

particular provisions weren't in that, so you updated that, and added some additional parts of that, as well.

MR. BLANTON: We did, Your Honor, and I appreciate the Board helping us keep our exhibits caught up with the record. And, in doing that, I realized we had a similar issue with Mr. Moorer's presentation this morning, but if the Board will allow us to, we'll supplement the excerpt from ER that we're admitting in SNC00001, because we don't have Chapter 9 of the ER in there. And we're not ready to do that just this morning, but we'll try to do that before we close the evidence.

JUDGE BOLLWERK: All right. So we should then -

MR. BLANTON: And what I would propose, that's just going to be an additional. And we have Parts A-O of Exhibit 1. We would just propose adding Part P.

JUDGE BOLLWERK: P. Okay. All right. And you think maybe that will be coming in tonight? Is that possible, or some time today? I don't know what you're -

MR. BLANTON: No, sir.

JUDGE BOLLWERK: All right.

MR. BLANTON: As soon as we can get it.

JUDGE BOLLWERK: All right. And is Mr. Moorer going to be referring to it today? Is it something -

MR. BLANTON: He is, but not in any detail. He refers to that the impacts analysis is in Section 9 of the ER, and directs it to the Section in ER that -- is this better? His slides refer to Section 9 of the ER but there's no real substantive discussion of it.

JUDGE BOLLWERK: All right. Would there be anything that the Board members, we're going to need to check in terms of you think having the document? All right. Assuming that's not a problem, then we'll just go ahead, and when we get it into the, when you all are ready physically to bring it in, we'll go ahead and admit it at that point then. All right?

MR. BLANTON: Thank you, Your Honor.

JUDGE BOLLWERK: We've had spoken yesterday briefly with the Staff about ITAACs, and my recollection is there was something besides what you all were referring to, but I went back and looked, and I guess there's only -- there are two for the LWA, the Limited Work Authorization, and I guess there's then

several, a number for dealing with site emergency planning. And I take it, I'll let you speak to this, obviously, maybe we can deal with those in the context of the presentations we're going to hear today.

Two step process, one is turn it on, the second is tap on it. Got it.

MR. MOULDING: That's right. Those are the two sections, and the two presentations where we would be discussing ITAAC, in any event. But if the Board believes it would be helpful to have a brief sort of conceptual overview of what ITAACs are, I believe the Staff may be able to maybe, perhaps right before Presentation Six, give a brief discussion of that before beginning the Emergency Planning Presentation?

JUDGE BOLLWERK: I think that would be useful, just to sort of give us not only the sort of background on ITAAC, but how ITAAC work in the particular context of an Early Site Permit, and/or Limited Work Authorization, I think would be useful.

MR. MOULDING: Okay. I think the Staff can try and provide that overview. We may not be able to answer all the follow-up questions that you may have, but we can do our best.

JUDGE BOLLWERK: All right. Appreciate

that. Thank you.

MR. MOULDING: The Staff also has one administrative note related to one of the presentations yesterday. In the Safety portion of Presentation Two, the Staff identified a correction to Slide 19, which is part of the presentation that Dr. Kincaid was giving, a reference to cubic feet per second should actually have been gallons per minute. And we can either refile the presentation with that correction, or Dr. Kincaid is here, and can correct that for the record, if that's what the appropriate approach would be.

JUDGE BOLLWERK: All right. That was, again -- can you tell me what presentation, again?

MR. MOULDING: It was in Presentation Two.

JUDGE BOLLWERK: All right.

MR. MOULDING: Safety portion, Slide 19.

JUDGE BOLLWERK: All right. Hold on one second.

MR. MOULDING: This is NRCR00060.

JUDGE BOLLWERK: And this is under, let's see.

MR. MOULDING: It's the Safety portion, Slide 19.

JUDGE BOLLWERK: Right.

MR. MOULDING: There are two references to flow rates in the Mallard Pond catchment and the Daniel's Branch catchment.

JUDGE BOLLWERK: Right.

MR. MOULDING: It says CFS, and Dr. Kincaid has identified that those should be gallons per minute, rather than cubic feet per second.

JUDGE BOLLWERK: All right. If there's no objection from the Applicant, why don't we just assume that those changes have been made to the slide.

MR. BLANTON: We're just glad to have somebody else needing to correct something, Your Honor.

JUDGE BOLLWERK: All right. We're just kind of all working through this together. All right. So, why don't we take it, then, that we'll take those references as amended per the representation of the Staff, and without objection from counsel for the Applicant. And, again, it's actually under the third bullet for each of the sub -- there's a main bullet for Mallard Pond catchment, and one for Daniel's Branch catchment, and the third bullet under each of those has a citation which reads "CFS", and that should be gallons per minute, rather than cubic feet per second.

All right. Anything else?

MR. MOULDING: Thank you, Your Honor.

JUDGE BOLLWERK: All right. Anything else anyone has at this point?

All right. Then I think we're ready to go ahead and begin the presentation this morning on Environmental Impacts of Alternatives. In theory, we're going to try to do at least three of these today; Environmental Impacts of Alternatives, it's Presentation Four. Limited Work Authorization and Site Redress Plan, Presentation Five. And then Presentation Six, Site Emergency Plan. And then we'll see where we go from there.

I guess we have a panel for both the Applicant and the Staff for Presentation Four, and we'll go ahead and have them seated now. And I think there's been an agreement, we're going to kind of drive today with the DDMS, I take it, in terms of both parties' presentations. Is that correct? All right.

All right. My notes reflect that Mr. Moorer is going to be the lead, or the Applicant is going to be the lead on this one, so why don't we go ahead and introduce Mr. Moorer.

MR. BLANTON: Your Honor, the Applicant's witness on the alternative issue is Mr. Tom Moorer,

who you met last week in the contested proceeding. I don't think he's been up yet this week.

JUDGE BOLLWERK: All right. That's correct. Then, Mr. Moorer, if you could, raise your right hand, please. You were sworn last week, let's go ahead and swear you in again. Again, we need an affirmative response to the question.

Do you swear or affirm that the testimony you will give in this proceeding is the truth, the whole truth, and nothing but the truth?

MR. MOORER: I do.

JUDGE BOLLWERK: Thank you, sir.

MR. BLANTON: Your Honor, we have two exhibits with Mr. Moorer. First, SNC000076, is his slide presentation.

JUDGE BOLLWERK: All right. Let the record reflect that Exhibit SNC000076, as described by counsel, has been identified for the record.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000076-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: And then, SNC000014 is his Curriculum Vitae that was introduced in the contested proceeding, as well.

JUDGE BOLLWERK: All right. Then the

record should reflect that Exhibit SNC000014 is identified for the record. And, again, that one will have a separate designation, as do all the exhibits, for the mandatory hearing, as with a -MA-, so that's how we'll be able to distinguish the exhibits in the mandatory from the ones in the contested hearing.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000014-MA-BD01FOR IDENTIFICATION.)

MR. BLANTON: And, as I mentioned, we'll have an additional part to add to SNC00001, which is the ER that we'll offer just as soon as we have it ready to be marked for identification.

JUDGE BOLLWERK: All right. And that would be Subdivision P, if I remember correctly.

MR. BLANTON: And we would move to admit SNC000076, and 000014 at this time.

JUDGE BOLLWERK: All right. Any objection? Hearing none, then Exhibits SNC000014 and 76 are admitted into evidence.

(WHEREUPON, THE DOCUMENTS REFERRED TO, PREVIOUSLY MARKED EXHIBITS SNC000014-MA-BD01 and SNC000076-MA-BD01 FOR IDENTIFICATION, WERE RECEIVED IN EVIDENCE.)

JUDGE BOLLWERK: And let's go ahead and

deal with the Staff witnesses. And, again, we're going to be putting both sets of witnesses on so there can be some interaction between them, as they becomes appropriate and useful.

MR. MOULDING: Thank you, Your Honor. For Presentation Four, let me introduce the Staff witnesses. From the Board's left, Mr. Mark Notich, Mr. Paul Hendrickson, Mr. Lance Vail, and Dr. Christopher Cook. You're seeing Mr. Hendrickson for the first time, so if you would like to swear him in at this time.

JUDGE BOLLWERK: I will do that. Thank you.

All right. Again, as counsel mentioned, the other three of you have already been sworn. Just as a reminder, you do remain under oath.

Mr. Hendrickson, again, I need an affirmative response orally to the question. Do you swear or affirm that the testimony you will give in this proceeding will be the truth, the whole truth, and nothing but the truth?

MR. HENDRICKSON: I do.

JUDGE BOLLWERK: Thank you, sir.

All right. And then we can deal with a couple of Staff exhibits, I believe.

MR. MOULDING: Yes, Your Honor. I believe we have two. First is Presentation Four. It's NRC000062, Staff Presentation Four, Environmental Impact of Alternatives.

JUDGE BOLLWERK: All right. The record should reflect that Exhibit NRC000062, as described by counsel, has been marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT NRC000062-MA-BD01 FOR IDENTIFICATION.)

MR. MOULDING: Also, Exhibit NRC000078, Curriculum Vitae for Paul Hendrickson.

JUDGE BOLLWERK: And then the record should reflect that Exhibit NRC000078, as described by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT NRC000078-MA-BD01 FOR IDENTIFICATION.)

MR. MOULDING: We would move that these two exhibits be admitted into evidence.

JUDGE BOLLWERK: Any objection? Hearing none, then NRC Exhibits 000062 and 000078 are admitted into evidence.

(WHEREUPON, THE DOCUMENTS REFERRED TO, PREVIOUSLY MARKED EXHIBITS NRC000062-MA-BD01 and

NRC000078-MA-BD01 FOR IDENTIFICATION, WERE RECEIVED IN EVIDENCE.)

JUDGE BOLLWERK: And, at this point, I believe that we're ready for the presentation from the Applicant on Environmental Impacts of Alternatives.

MR. MOORER: Good morning, gentlemen.

I'll speak a little bit this morning about the alternative site selection process, and specifically describe in a little bit of detail the process that Southern Nuclear used to come up with the four candidate sites that were considered for the alternate site analysis. Next slide, please.

This is just my CV. I've been with Southern Company for almost 32 years, and I've got over 30 years experience in environmental issues, in general, with about 20 years in nuclear, 18 or so. And quite a bit of experience in NEPA. Went to Auburn University, I'll give Auburn a plug while I get a chance. Next slide, please.

Beginning, the -- I guess, the first thing I'd like to point out is that the Alternatives Analysis is a fundamental part of NEPA. It's one of the key aspects of NEPA, and in the regs, the CEQ Regs at 40 CFR 1502, and in the NRC regulations, the concept of demonstrating that the sites you select,

after being compared to alternatives, you demonstrate that -- the purpose is to demonstrate that there is no obviously superior alternate site. And that's what the process is really focused on, defining sites in a way to demonstrate that there's not an obviously superior site.

As we spoke earlier, this is discussed in Chapter Nine of the Environmental Report, and also in the same chapter of the FEIS. And we look at, basically, three alternative categories; the No Action alternative, Energy alternatives, which are divided into generation and non-generation alternatives, and then alternate sites, and the process of looking at those sites, as well as, we also discuss in this presentation alternative cooling technologies.

Guidance is available in a number of sources, Reg Guide 4.2, Section 9.2 provides guidance to the Applicant on how to prepare the Environmental Report to support an FEIS. Guidance is also available in Section 9.3 of the Environmental Standard Review Plan, NUREG 1555. And I also mention Reg Guide 4.7. Reg Guide 4.7 is a guide on siting, and there's quite a bit of useful information in that Reg Guide that we used in our comparison, in our process of comparing one site to the other. Next slide, please.

JUDGE BOLLWERK: We're on slide four now?

MR. MOORER: One of the key -

JUDGE BOLLWERK: I'm sorry. We're on slide four now?

MR. MOORER: Yes, sir. Slide four. One of the key elements in understanding the Southern Nuclear process is understanding the definitions of two terms; relevant service area, and region of interest. The relevant service area describes the geographic area where Vogtle, the two new units in Vogtle, would sell the electricity produced by Vogtle. The region of interest refers to the geographic area that Southern Company actually provides power in, and that is a four-state area, including Georgia, Alabama, Mississippi, and part of the Florida Panhandle. And that is the area that Southern Nuclear used in looking for alternate energy sites.

In the old way of doing business, in the old process with existing sites, existing units, normally, the utilities only located their alternate generation within their relevant service area. Now that the new process is out - in other words, the relevant service area and the RSA were the same, ROI were the same - in the new process, you consider both the relevant service area, and the ROI. And we've

expanded our analysis to the ROI, the region of interest, which is the Southern Company generating territory. Next slide, please. Slide Five.

Let me talk a minute about the No Action alternative. The No Action alternative is pretty basic. It's basically the non-issuance of the ESP. And I mention the COL here for context. In the case of the ESP, since you're not really building the plant, there's not much of an impact directly from No Action alternative for the ESP. But when you put the COL into the mix, and you don't build a plant, then you get a situation where you would lose the benefits of the generation. And that, essentially, might be a short-term, initially, a small impact as you might get some reduction in your generation margin. Utilities typically have a margin of spinning generation available, and as you begin to degrade that margin over time, you would, at some point in time, and we believe fairly quickly, reach a point to where it would impair service to the customer. In other words, you would have more need than you had generation.

And, actually, what happens with No Action alternatives, you don't really avoid the impacts. You just shift those impacts to other sources. In other words, you've got to build generation somewhere. If

you don't build it as nuclear on this site, you're going to build fossil, coal, combined cycle gas, some type of generation on another site, so there's not an avoidance of impact. That's the point I'm trying to make, it really has shifted impacts to another area.

JUDGE TRIKOUROS: Except for the consideration of demand side management conservation efforts. Right?

MR. MOORER: Yes, sir. That is true, and I'll talk about that in a moment. We really believe that although those efforts are important to a generation mix in an overall strategy, there's just not enough demand side possibility to fill the need for 2400 megawatts of baseload. Next slide, please. Slide Six.

Talking now about the energy-related alternatives. As I said before, these are divided into two categories, those that don't require generating capacity, such as demand side management, and those that do. And I think it's important to understand that this alternative's analysis is predicated on an understanding that we're comparing alternatives to 2234 megawatts of baseload generation. That's an important concept that we'll carry throughout the discussion. Next slide, please. Slide

Seven.

Just discussing the alternatives that don't require generating capacity, Judge, you mentioned demand side management, including conservation efforts. That's one of the more common ones. Also, Purchased Power Agreements, which are basically contracts with other utilities, or other power producers that have excess capacity. And you contract for some given period of time to buy certain known capacity of generation. And these are called Purchased Power Agreements, or PPAs. And one of the bigger ones for Southern Company has been life extension of existing plants. We have three nuclear plants in our fleet. We've gone through license renewal, completed license renewal for two of them, and the Vogtle plant is in the last stages of license renewal.

We've also upgraded, or uprated all of the three existing plants to get more megawatts out of those existing facilities. So that's another important source of non-generation energy alternatives. And then you always have combinations of these alternatives. You can mix and match to meet your needs. But, again, these alternatives, while they're important, they do not rise to the level of

replacing the baseload. Just to provide a reference, this is discussed in Section 9.2 of the ER, and also in 9.2 of the FEIS. Next slide, please. Slide Eight.

The alternatives that require generation include quite a few, including wind, solar. I'm not going to read you the list, I'll spare you that. But I will note that combinations of these alternatives is also possible, and we'll discuss the combinations in just a moment. Next slide, Slide Nine, please. Yes, sir?

JUDGE JACKSON: Let me ask you a question while you have that list up. You just stated that what you're looking at is baseload generation. I'm just, in studying these, I just wanted to make sure I understood how you think of wind, solar, those alternatives that are not traditionally thought of as baseload, how you put those in the mix with a baseload on one side, and then a mixture with what appears to be non-baseload. How does that work?

MR. MOORER: Judge, if you'll notice the last bullet says, "Combinations of the above technologies", if you'll give me just a moment, I'm going to discuss a combination alternative.

JUDGE JACKSON: Okay.

MR. MOORER: I think that'll answer your

question. Next slide, please, Nine.

Again, just reiterating, none of these alternatives alone provide a suitable replacement for baseload. And even combinations of the alternatives really don't provide a long-term solution to the growing demand forecast that's at approximately 1.8 percent per year in the southeast. So, we basically determined that the non-generation alternative is really not a viable alternative, and I'll discuss in just a moment the second bullet, which is a combination of combined cycle gas fired and wind as an alternative. Next slide, please, Slide Ten.

We looked at a combined cycle gas combination with 120 megawatts of electric wind power as a combination alternative. And we chose four 530 megawatt gas plants combined with 120 megawatts of wind energy. And the logic there is that combined cycle gas has the capability to load follow. In other words, you can follow, if you had a wind plant operating at 120 megawatts and the wind died, you have the capability of stepping up the generation in the combined cycle side to fill that void, if you will. So, we felt like this was an alternative that had some promise, and we looked at that in the ER in Section 9.2. There's also some limited discussion in the

FEIS, but the ER goes into intimate detail comparing the impacts associated with those four 530 megawatt combined cycles, as well as the wind impacts, to determine, basically, that this alternative did not compare favorably with nuclear, and that nuclear was still the chosen alternative.

JUDGE JACKSON: So the idea, and to get at my question, then you would oversize so that in the worst case, you would still fall back to the baseload target.

MR. MOORER: Exactly.

JUDGE JACKSON: Okay.

MR. MOORER: You would actually have to -- this example, if you do the math, comes out to roughly 2,234 megawatts, 2,030 megawatts, and you run into a situation, like you said, you would have to oversize the combined cycle to provide for the time when wind -- the capacity factor for wind, at best, is about 35 percent, so you have to make up that difference in capacity factor, so you actually would have to oversize the plant to compensate for that loss in capacity factor.

JUDGE JACKSON: Thanks.

MR. MOORER: When you look at the air impacts, and land use impacts, and the combination of

all the impacts compared to nuclear, nuclear, very clearly, is a better choice from an environmental impact standpoint.

JUDGE TRIKOUROS: One of the things that I wanted to talk about throughout this presentation, but I'll bring it up now, is the issue of the assumption of 2,234 megawatts electric nuclear. So, for example, if you chose not to build two AP-1000s, and you chose to build one AP-1000, would the alternatives analysis that you have done be valid? That's one question.

The other is that you really haven't considered an alternative where you look at one AP-1000, and combinations of others. So it's sort of the same question, but worded a different way. And that is a viable alternative, I would imagine, unless you can tell me otherwise.

MR. MOORER: Responding to your question, Judge, the -- if you look at the alternative of one AP-1000 being replaced by an alternative, I guess that's kind of what you're suggesting, you would build one AP-1000, and one non-nuclear alternative. I think the same logic applies, and if you look at this example that we have before us now, you would drop the four 530 megawatt gas plants to two 530 megawatt gas plants. That might be an option that you might

consider.

You run into the same issue, in that there certainly are some economies of scale associated with two nuclear units being built versus one, in terms of the cost and the overall environmental impact associated with that. I think it's certainly intuitive to me that there are economies of scale there. But I think if you just scale this down, or, for that matter, you could scale it in the other direction, you could scale it up for that matter, as well, and look at it. You run into the same issues. And if the air impacts, in particular, and this doesn't consider CO2, if you consider CO2, that makes the analysis even more robust. This just considers the traditional air pollutants, the sulfur dioxide, nitrogen oxides, and the heavy metals and HAPs. If you consider CO2, it becomes even more robust. But I think, to respond to your question, scaling this down really doesn't solve the problem. In other words, if you compare this to one AP-1000, and you have -- you still have the same issues.

JUDGE TRIKOUROS: I'll ask a question, as I've asked it in other proceedings. In the event that you did build one for any number of reasons, you chose not to build the second unit, would you consider that

this analysis that you've done would still be valid, even if you implemented smaller energy, nuclear energy, or would you consider that significant new information that would require a re-evaluation of this alternatives analysis?

MR. MOORER: I think the best way to answer that is that - we have not done that analysis, so I'll be supposing - but my intuition tells me, and my experience tells me that downsizing to one unit and comparing with a very similar comparison, you would reach the same conclusion; that the nuclear alternative is a better alternative. So, in answer to your question, I think the answer is that you would reach the same conclusion. But I will say that if we were to downsize from two units to one unit, we would certainly treat that as new information, and would go through the process of vetting that in the COL.

JUDGE TRIKOUROS: Okay. Thank you.

JUDGE BOLLWERK: An alternative on this question or issue about the capacity, the 2,234 megawatt capacity, I mean, there's been recent indications in the press that given the recession that's going on, that electricity demand is going down. Why, given that -- or how confident, given that, are you that the demand load you think you're

going to need is really there? And why couldn't you use some kind of combination of alternatives that are non-nuclear, as well as demand side management to reach the same goal, in terms of providing electricity?

MR. MOORER: Your Honor, I'm not sure that I'm the right one to answer all of that question. I'm not all that familiar with the forecasting mechanisms that are used to determine what the load needs to be, but since I'm all you've got right now, we'll try to give you an answer.

I believe that likely what you would see, if we had a big shift in demand; in other words, we saw that demand had shifted dramatically, you would probably see the schedule pushed out in time, and the units would still be constructed, but may be constructed later than they are in the schedule now. And you might use a demand side management type alternative, or other alternatives to fill that gap. But I don't think you would -- at this point in time, that Southern is contemplating a change as a result of the economic downturn. That's certainly something everybody is watching and looking at, but I'm not aware of any forecast that has changed our process.

JUDGE BOLLWERK: All right. Let me just

make one point, whether the Staff wants -- at some point, we're going to come back to these questions with the Staff, whether you want to address them now, or wait until your presentation. I'll leave it up to you.

MR. HENDRICKSON: I'll wait, I think.

JUDGE BOLLWERK: All right.

MR. MOORER: Are we ready to move on?

JUDGE BOLLWERK: Yes, please.

MR. MOORER: Okay. Thank you.

I will mention on this slide that we did look at a coal gas type alternative, and we found, basically, that the impacts from coal were significantly larger than gas, and felt that that was-- as a result, there was no need to carry that comparison any further. Next slide, please. Slide Eleven.

JUDGE BOLLWERK: Can I raise one other question with you before -- I think you're going to go to site process. You said something -- you said that you did not take advantage of -- for CO2 in any way. In other words -

MR. MOORER: Yes, sir. We did not consider any kind of CO2 cost, or cap and trade, or any type of program to value the CO2 issues, and

credit nuclear with CO2. I think we feel very strongly that that's an advantage for nuclear, but that's just such an unknown right now that it's hard to know how to quantify that, so we chose not to use CO2 as one of the mechanisms for providing nuclear with an offset.

JUDGE BOLLWERK: Because there have been other cases, for instance, I know the Bellafonte facility that I was on the Board, where there actually was discussion of CO2, but I did not see that. You did not include that for that reason.

MR. MOORER: Yes, sir. We do discuss in the environmental report the amount of CO2 that's offset by the nuclear generation, but we don't take credit for that in the alternatives analysis.

JUDGE BOLLWERK: All right.

JUDGE TRIKOUROS: Your Public Service Commission, in their evaluations for this plant, did they consider -- I'm assuming they went through an alternatives evaluation that was rather detailed, and was carbon dioxide involved in anything there, do you know?

MR. MOORER: Your Honor, I was not intimately involved in those proceedings, and I don't really know whether they used that, or not.

JUDGE TRIKOUROS: The Florida PSC for Turkey Point certainly did. In fact, it was prominent in that evaluation.

MR. MOORER: Yes, sir. I'm aware of that. We're actually following that one and Levy County very closely. And I am aware that Florida did use that.

Starting with Slide Eleven, what I want to do here is, basically, just kind of go back through and recap the regulatory process a little bit. Again, I think I started off by saying that the obviously superior test is the basic test for alternative sites. And that's located at 10 CFR 52.17. And I also want to make -- I think it's important to understand that the method that was used for alternatives analysis for the existing fleet, that the method has now changed a little bit. And it's really changed in the context that now we have existing nuclear sites that can be used as a contrast or comparison for alternatives analysis. And in ESRP Section 9.3(iii)8, the NRC goes into some level of detail about that particular issue. And, basically, as I understand that section, it basically says if you have existing nuclear sites in your region of interest, that those sites need to be included in the alternatives analysis. And we have done that for this analysis. We included all of the

nuclear facilities within the region of interest for Southern Company in this analysis.

I reiterate that the process is driven by Reg Guide 4.2, as well as Section 9.3 of the Environmental Standard Review Plan. And I also used Reg Guide 4.7, and, in particular, EPRI has developed a siting guide, and it basically uses a numeric-type analysis, where you rate the sites with numeric values for various criteria; water, land use, whatever. And you sum that up, and are given actually a numerical ranking. It's very useful as a screening tool to screen sites with. And we used that EPRI method as part of our analysis. Next slide, please. Slide Twelve.

Shifting now to kind of describe what Southern Nuclear did in our process. We talked about the process, in general, and now I'll talk a little bit about how we did our process. Basically, our process consisted of two steps, and the first step was we identified all potential sites within our region of interest that had existing units of 1,000 megawatts or greater, adequate land availability, and available cooling water. And we also included all of the greenfield sites currently owned by Southern Company, which they are only two at this point in time.

In looking at -- that was 40-something sites, and I'll show you a map in a minute that kind of gives you a visual indication of how many sites there are. We did not consider hydro sites, obviously. We didn't consider anything smaller than 1,000 megawatts electric, obviously, baseload-type facilities. And after that information was done, we used that as a screening tool, and then we developed a potential list that we went through a further screening process with.

And, Judge, I guess this as good a time as any to talk about - we did have, as Mr. Blanton mentioned - in Section 9.2, we identified -- in my presentation I talk about two greenfield sites. One is the Chilton-Elmore or Barton site located near Clanton, Alabama. And another one that was considered, but not selected, is a site called Dallas County near Selma, Alabama. And I will note that the Environmental Report does not specifically mention the Dallas County site. We also responded to an RAI, including a description of our process. It also does not specifically mention the Dallas County site. We actually screened it out very early, because the Barton, or the Chilton-Elmore site, formerly known as Barton, actually was developed as far as a PSAR in the

`70s, so it had a lot more information relative to nuclear, was a much better, we felt, greenfield alternative, so we chose it. But I just wanted to make it clear that we did not specifically mention the Dallas County site in the record. I think that might have been a question the Staff had, as well. Just to get that on the table, and if we can answer questions about that, I'll be glad to answer any questions you might have. Next slide, please. Slide Thirteen.

As I stated a minute ago, the process began with identifying all the sites within the Southern Company region of interest that had greater than 1,000 megawatts. We also looked at all available greenfield and brownfield sites, and that was two sites, Dallas County, and the Chilton-Elmore, or Barton site.

Our process focuses on, and this goes back to the NRC guidance, alternative sites that are reasonable with respect to being licensed. In other words, if there's something about a site that just obviously was a deal-breaker from a licensing standpoint, those sites were screened out early. They were not considered. And that's consistent with the NRC guidance.

Again, we used 1,000 megawatts electric as

the baseload screen. And then we applied additional screening criteria that included land availability, access to adequate quantities of cooling water, transmission access, site geology, demographics, and there were a number of others in the list.

Using this process as an initial screen, we narrowed the list down from 40-something sites in four states to 12 generating sites in Georgia and Alabama, including two greenfield sites in Alabama. Next slide, please. Slide Fourteen.

JUDGE BOLLWERK: Can I stop you right there one second? I think you've already covered th is, but let me just, before you move on. The ROI, basically, you're looking at Southern's operating area. Given the change in the electrical generation structure in this country and the industry, we have merchant generators and that sort of thing, why, for instance, don't you go -- can't you go to a site in Indiana and generate power, or some other -- Virginia, or somewhere else where there's another nuclear plant?

MR. MOORER: I think, conceptually, you could do that, and that's normally done on the non-regulated side of the business as merchant. And Southern Company has a merchant arm that's known as Southern Power.

As I understand the Environmental Standard Review Plan, it, basically, gives you the alternative to look at the region of interest and pushes you in that direction. Just conceptually, and I'll note that in the slides you're looking at now, the Savannah River Site that, as I think I said last week, I, at one time, could have thrown a baseball and hit it. I'm not sure I could do it now. It is, obviously, a site that might be available for our use, but it's not in our region of interest. We don't control it. I think it just, conceptually, would be very difficult to do that. You don't have enough control of those sites to adequately evaluate them, and staying consistent, again, with the Standard Review Plan, we believe that staying in the region of interest was the proper thing to do.

JUDGE BOLLWERK: All right. Thank you.

MR. MOORER: Looking at the sites in Georgia, there were some coal sites, and two nuclear sites. The Plant Bowen, which is a large coal fired site in north Georgia; Plant Branch, Plant Hammond, and Plant Scherer are all large coal sites, as well as Plant Hatch, which is a two-unit BWR located near Vidalia, Georgia. And then we also had Plant Vogtle that we're very familiar with. And, as I said before,

we did look at Savannah River Site in the initial process, but pulled it out because it was, basically, beyond our control. Next slide, please.

These are the Alabama sites. I won't read them to you, but, basically, we have one nuclear site in that mix, the Farley site, and then we had the two greenfield sites. Chilton-Elmore, which we chose, again, it has a PSAR done in the `70s. There's quite a bit of information on that site. And then Dallas County was the other greenfield site, and we screened it out later.

I note here that there were sites in Alabama, in particular, TVA's Browns Ferry site and Bellafonte that we look at in terms of -- identified as possible sites, and, again, screened out, because they weren't in our relevant service area, or our ROI. Next slide, please. Sixteen.

This is the map that I referred to. It's kind of difficult to see, and I apologize for that, but it does give you a flavor for how many generating sites are within the Southern Company region of interest. There's quite a few. This shows everything, including hydro. We didn't look at hydro, obviously. They're all very small. And it turns out that the sites that are in Mississippi, and the sites

that are in Florida are all very small sites, as well, and didn't meet the 1,000 megawatt criteria, so we were really limited to Alabama and Georgia in the final 12 sites that we looked at. Next slide, please. Seventeen.

These are the sites that we identified, and their locations within the southeast. We identified four sites, two in Georgia, and two in Alabama. The Vogtle site, the Hatch site, which is a two-unit BWR on the Altamaha River, the Farley site, a two-unit PWR on the Chattahoochee River, and the Chilton-Elmore, or Barton site, which is on the Coosa River near Clanton, Alabama. Next slide, please.

This slide is intended really to point out that in the Environmental Standard Review Plan, in the section that I quoted a moment ago, there is a clear focus on using nuclear sites when they're available. And there's two reasons for that. One is an obvious one, that you would want to use. They're, obviously, a more apples-to-apples comparison. But, also, nuclear sites have distinct advantages to developing additional generation on, and some of those are listed below. You have significant effect of associated infrastructure and support facilities that could be shared facilities. The impacts of that facility are,

essentially, pretty well known, and you would intuitively believe that the impacts of a new facility should be comparable, at least from a large-scale aspect.

The site's physical characteristics are fairly well known. The site geology, in particular, is well known. You typically have borings and geologic information available. The emergency planning work has been done for the site. And, typically, the emergency planning work is a big part of an ESP or a COL. Generally, you have transmission available. You might have to supplement it, but you do have existing transmission there. And you also have an experienced staff at an existing plant that might be used to provide seed-staff, if you will, for a new plant. And the other thing, I think, is the sites have local support. As you've seen from some our meetings we've had here, there is a very strong support for the Vogtle plant here in this community. Next slide, Nineteen.

Again, just reiterating, the existing nuclear sites have demonstrable advantages over the coal and other generation type sites. And in the screening process, we did give preference to the nuclear sites. We have three existing nuclear sites,

and two potential greenfield sites. And after going through the process, and I'll describe the process in a moment, we selected four candidate sites; the Farley Nuclear Plant, the Hatch Nuclear Plant, Plant Vogtle, and the Chilton-Elmore greenfield site. Slide Twenty, please.

Again, this slide just kind of -- this is almost a duplicate of the existing -- the previous slide. It, basically, just reiterates that the advantages of the existing nuclear sites as potential alternate sites. I will note that one of the other things I didn't mention before, is that these alternate sites have been through the NEPA process before, albeit, a number of years ago, but that is a pretty good indication that the site should be qualified under NEPA to support additional generation. I note, again, that the greenfield site that was selected was selected primarily because it had more information available, including a PSAR that was completed in the `70s. Next slide, please. Twenty-one.

After the alternate sites were selected, the four candidate sites were selected, we used the guidance in 4.2, the Environmental Standard Review Plan. I don't mention it here, but the EPRI siting

guide was very instrumental in this process to determine whether any of these sites met the criteria as obviously superior to the existing -- to the selected site.

And I will note here that Reg Guide 4.2 clearly directs the Applicant to use reconnaissance level information for these analyses, or these comparisons. And it doesn't really point you to, or request you, or require you to do site-specific studies of these alternative sites. You, basically, are directed to use the available information, and that's, basically, what we've done. Fortunately, there was a lot of information available, and I think, hopefully, that -- I feel very confident that there was more than enough information to make the decisions.

We looked at the both the impacts on construction and operation, so that this decision, when it was made, reflects not only the constructability of the plant, but, also, the operation. I think that's important. And using the NEPA criteria that's discussed in 10 CFR 50, Appendix B, Table B.1, small, moderate, large category, that was assigned to each criteria category, and then we, basically, summed those up to get a total. And that's

presented in both the Environmental Report, and in the FEIS. You'll see in a table that I'll reference later in the FEIS, where these comparisons are there, and you can see both the decision, or the ranking, if you will, small, moderate, or large for each specific category, as well as the total ranking for the site. Next slide, please. Twenty-two.

This is a summary of what the process included. And these are the categories. There are others besides these, but these are the main ones that were looked at in terms of ranking the site. And you'll see these. These correspond pretty closely to the Environmental Standard Review Plan, separate chapters. If you go through chapter-by-chapter and look at the chapter contents, these roughly correspond to those, but we looked at a number of -- all of these. And, as I noted before, the ones that were used in the preliminary screening; in particular, the land use, or land availability issues, and the availability of cooling water, we believe were deal-breakers. So, if the site didn't have enough land, or the site didn't have adequate cooling water, it was screened out. And, again, each of these categories or criteria were ranked as small, moderate, or large. And then that was used to determine the ranking of

each specific site for comparison. Next slide, please. Twenty-three.

In Table 9.3.2, and 9.3.3 of the ER, and Tables 9.7 and 9.8 of the FEIS, is where these comparisons are. And it's just a matrix, if you will, that shows each category, and the ranking. And my recollection is that we had mostly small, some moderate, and there were some moderate to large positive impacts that were considered. Some of the socio economic impacts are positive. The only large impacts we had were positive impacts, and we had some moderate, some large. The moderate impacts, if I recall, transmission lines was a moderate impact, because a new line construction is a pretty significant impact. And I think there might have been one associated with maybe the impact of traffic on the roads. But, other than that, they were small.

And we concluded from this analysis that no obviously superior site exists. We confirmed that the decision that Vogtle Three and Four, the selection of Vogtle Three and Four as a site was appropriate, and it meets the NEPA process criteria for alternate site analysis.

JUDGE TRIKOUROS: If there were a site that was obviously superior in every criterion you

listed, except cooling water, did you implicitly, or explicitly exclude dry cooling as an option, based on all of the arguments we heard last week regarding your company's position regarding dry cooling?

MR. MOORER: No, sir, we did not exclude any technology from that. We found in our analysis, though, that there were some -- it was almost a step change between sites that had plenty of water, and sites that didn't. There were not a lot of marginal sites. They either had, essentially, no water, or they had abundant water. And the sites that were -- there were no sites that were screened out on water alone, all three of the nuclear sites were included. And the fossil sites that were screened out, were screened out because of other reasons, including water availability. So, it wasn't just water availability. That was one of the key ones, obviously, because we believe that's a very strong indicator of a significant cost, and problems with licensing, as well.

JUDGE TRIKOUROS: So you're saying you weren't going into this with the assumption of a certain cooling water system, and, therefore, screened out water as the high-level -

MR. MOORER: No, sir. At the level that

we screened the fossil sites out, we included a number of criteria, including cooling water. But we didn't make any presumptions about a cooling type for that particular screening. The cooling type was entered in the comparison of the four candidate sites. In other words, we assumed a cooling type there, but we did not assume -- make any assumptions about cooling types on the preliminary screening.

JUDGE TRIKOUROS: So, you could say comfortably that there were no sites that were obviously superior, with the exception of cooling water.

MR. MOORER: Yes, sir. I can say that.

JUDGE TRIKOUROS: Repeat that.

MR. MOORER: As I indicated, the other sites were fossil sites, and there were a number of reasons that we wouldn't select those sites, in addition to cooling water availability.

JUDGE TRIKOUROS: Thank you.

MR. MOORER: Next slide, please. Slide Twenty-four.

Shifting gears now, and moving to the discussion of alternate cooling systems, you gave me a great segue to that, and I appreciate that. Just to talk a little bit about the process that we looked at,

looking at alternate cooling systems. Basically, we looked at all of the available cooling technologies that we were aware of, and that included once-through cooling, mechanical draft wet towers, natural draft wet towers, dry towers, wet/dry hybrid towers, cooling ponds, and spray canals. And these were, essentially -- these technologies are technologies that are used in the nuclear industry across the country. And that's where we got the list. Next slide, please.

In looking at mechanical draft cooling towers, we used a code called SACTI, Seasonal Annual Cooling Tower, I can't remember what the I stands for. It's a model, basically, that looks at the emissions from cooling towers, and, particularly, looks at the production of fog from cooling towers. Icing is really not a concern in our area of the country; although, icing is certainly one of the things that this model looks at. It also looks at drift, or solids deposition associated with cooling towers. And looks at the plume direction, and the esthetics associated with the plume. In other words, the plume shape, and the plume length is part of this SACTI model, as well.

And, I will note that for the mechanical draft towers, we noted that they are slightly less

expensive than natural draft towers, a little bit more drift from mechanical draft towers, obviously, because the fans are closer to the water.

JUDGE JACKSON: Mr. Moorer?

MR. MOORER: Yes, sir?

JUDGE JACKSON: Slightly less expensive, and you were considering both capital and operational costs in that?

MR. MOORER: Yes, sir. Well, if you -- what I'm talking about here is capital cost. The capital cost is slightly less expensive. When you factor the operational cost in, it's almost a wash for natural draft, and mechanical draft. This is referring to capital cost, and I probably should have said that.

JUDGE JACKSON: Okay. Thanks.

MR. MOORER: But the other impacts are relatively equal, in terms of water use, and those type of things.

We made a decision to move to natural draft driven by a couple of things, and the largest of those was our experience with existing One and Two Natural Draft Towers. Our operators love those towers, and they love the fact that they don't have fans and gear boxes, oil to change, and fan motors

failing, and those kinds of things, so the maintenance aspect was a big driver.

As I said previously, the overall cost when you consider capital and O&M is, essentially, a wash. And, as a result of that, we believe that the natural draft towers were preferable. We also believed, and this sounds maybe a little silly to some people, but having two natural draft towers on the site already, putting two additional natural draft towers, to us, was not as esthetically impacting, as to have mechanical draft and natural draft mix. And that's a small issue, but that was talked about. That decision was made, so, fundamentally, this analysis, once we finished with it, left mechanical draft, wet mechanical draft, and wet natural draft as the two alternatives we believed were available. And we chose natural draft. Next slide, please. Twenty-six.

Discussing the hybrid towers, we spent a lot of time, seemed like just a week ago, talking about dry cooling. Mr. Cuchens provided you with a very detailed report, and I think it hit on all of these things for dry cooling. Wet, dry, or hybrid cooling is, essentially, just a combination of the wet and dry technology. And many of the problems that we pointed out for dry cooling are also applicable for

wet/dry hybrid towers.

These towers are referred to, typically, as plume abated towers. And their use is fairly limited, and it's used in areas largely where you have a problem with aesthetics associated with a plume. These towers remove the visible plume. They're also used in areas, as I note here, where you have problems with fogging or icing, because they do eliminate that discharge from the tower. But, similar to dry cooling, they require a lot more land, because they are mechanical draft-driven fans. You have a lot more less efficiency than the normal wet cooling towers. You have significant power usage. The parasitic load is fairly significant, as we talked about the other day.

The one advantage is, they do reduce water use, somewhere from about a third, to a half. But when you look at the Vogtle site, and you look at the fact that there is abundant water, and the impacts associated with water use were determined to be small, we felt that the hybrid tower was not applicable for Vogtle. And they, essentially, weren't preferable for Vogtle. Next slide, twenty-seven.

I didn't discuss dry towers here, since we had quite a bit of discussion of that the other day.

I'll be happy to recap that, if you'd like, but I think you all have quite a bit of information on dry towers, so I didn't include that.

Looking at once-through cooling, once-through cooling, obviously, is only really an option where you have an unlimited virtual supply of water. Looking at a once-through application for Vogtle, you're looking at 2.4 billion gallons per day. And I don't think that was even considered passed that point.

Other technologies, such as cooling ponds, they take a lot of land. They're not very efficient. There are all kind of problems associated with them. Spray ponds are, essentially, just a variant of cooling ponds, so those were not really seriously considered. We didn't believe that they had much application. So we, basically, as I said before, arrived at wet mechanical, and natural draft wet as the two suitable alternatives. And we chose wet natural draft towers for the Vogtle Three and Four project. Slide Twenty-eight, please.

That's it. Questions?

JUDGE BOLLWERK: You mentioned before, a little earlier, that, obviously, when you've got an existing site, whether it's nuclear, or some other,

particularly, nuclear, you're going to have a lot of the information you need on seismic, and things like that. How do you keep the fact that you have so much information on a nuclear site from sort of biasing your analysis of the alternatives? I mean, if it's easier to have that information, you're going to look there, and maybe not go other places, because you're going to have generate that information, at least at some level.

MR. MOORER: I think that's a fair question. In our particular analysis, we had enough sites to include all nuclear sites. And if we looked at the coal sites that ranked just below the nuclear sites in the process, those coal sites had a number of additional problems, as I mentioned before. They were really not -- a lot of them didn't have adequate land, because the coal sites, because you have ash ponds, and coal piles, they're typically land-intensive, and those sites, the majority of them, you would have had to buy additional land. And, in many cases, they were located in places where land was not readily available, and those are the kinds of things that we looked at. So, in answer to your question, when we got down to the actual comparison, that really didn't enter into our's, because we had all nuclear and

greenfield. So, the only thing it affected was the greenfield, and this particular greenfield, we had a lot of the same kind of information for the greenfield. So, in our case, that really didn't enter too much into the mix.

JUDGE BOLLWERK: All right.

JUDGE TRIKOUROS: Let me ask a variation on the question I asked before, but instead of cooling water, let me ask it about land area. Your two high-level exclusion criteria were land area, and cooling water. We talked about cooling water a few minutes ago. In terms of land area, how did you exclude things on the basis of land area in coordination with the different types of cooling systems?

So, for example, did you look at land area that wouldn't preclude dry cooling, for example, or another larger land area cooling system. For example, if you chose a site that had a land area that was X, but X was not sufficient to include the land area associated with dry cooling, then you, basically, precluded dry cooling by picking that site, in a sense. Did you look at land areas that were large enough to include all cooling options?

MR. MOORER: We chose a value of 2,000 acres as kind of the preferable land -- in other

words, anything less than 2,000 acres was ranked lower than sites greater than 2,000 acres. We really didn't go into the level of detail to suggest that dry cooling was available or not available. It was more looking at the site, the particular site, looking at the available acreage, and then looking at what was around the site, and could you go out and buy additional land easily, or if there was a road, or some physical impediment that would keep you from expanding the site easily. So, we really didn't focus on dry cooling, or any other type of technology, per se. It was more looking at available land, and could that land be easily supplemented.

JUDGE TRIKOUROS: But the land area that you chose was sufficient to accommodate all the various cooling options?

MR. MOORER: I believe that it would be, yes, sir. I think 2,000 acres would accommodate dry cooling, or any other cooling technology, at this point in time. We didn't really look at, and I can't say that we specifically accounted for dry cooling in the land selection. It was more -- a lot of these fossil plants have been there for a while, a lot of the sites are older sites, and they have roads that might subdivide them, that kind of thing. It was that

type of physical barriers that we ran into more than anything else.

JUDGE TRIKOUROS: Yes. I'm trying to address the issue of high-level criteria. When you have 20 criteria, and you choose two high-level criteria, then I think issues arise as to what gets excluded in terms of the total evaluation by the high-level criteria.

MR. MOORER: Let me clarify something for you. I think this might help. The high-level criteria that we used were basically 1,000 megawatts or greater, adequate land availability, and water availability. But we did not screen out -- if we had units that had 1,000 megawatts or greater, they were included. In other words, the 12 that you see, all of the 12 sites that had 1,000 megawatts or greater. We didn't screen out any site at that point because of land use. And that might have been misleading a little bit.

A lot of the smaller sites, less than 1,000 megawatts, those were screened immediately. But, as it turned out, that all of our large fossil sites met the criteria for land use, anyway, so we really didn't screen any of the large 1,000 megawatt or greater sites out because of land use.

JUDGE TRIKOUROS: All right. Thank you. I appreciate that.

JUDGE BOLLWERK: All right. Let's then turn to the Staff Panel then, and I don't know who's going to be making the presentation, but we'll hear from you all at this point.

MR. HENDRICKSON: Okay. My name is Paul Hendrickson. Before I begin, I'd just like to make a couple of clarifications on Mr. Moorer's presentation. The first one would be that the Environmental Impact Statement did not include the Florida Panhandle area in the region of interest. The EIS just has the three-state region, because that's what was in the ER, so that's in the EIS. That's one clarification.

And then, Mr. Moorer also pointed out that the Dallas County site was not in the material submitted that the Staff had access to, so the potential site list in the Environmental Impact Statement does not include the Dallas County greenfield site. So I just wanted to make those two clarifications on his presentation.

JUDGE TRIKOUROS: So, before you start, let me just ask you to think about this when you're in your presentation. This concept of choosing a region of interest is a little bit confusing in the sense

that some applicants have chosen regions of interest that were almost half of the United States, and, clearly, outside of their service area, or area where they might have generating stations, which would imply that the -- there aren't any strict rules, as far as I know, regarding region of interest choice. How do you look at that, in terms of -- what if there were a very, very viable site in the Florida Panhandle that was outside of the chosen region of interest by the Applicant, would you then consider that in your evaluation? Don't answer it now, but as you go through it, I just wanted you to keep in mind that there's an interest in what this region of interest means, and how you use it.

MR. HENDRICKSON: Okay. I will try to address that as I go through my presentation.

Again, my name is Paul Hendrickson. I'm with Pacific Northwest National Laboratory. I have a Bachelor's degree in Chemical Engineering from the University of Washington, and other graduate degrees also from the University of Washington, and from Perdue University. I've been with PNNL for about 36 years, basically, my whole career. I've been doing Environmental Impact Statement support work for NRC for about the last 11 years; in fact, beginning with

the first license renewal Supplemental Environmental Impact Statement.

MR. MOULDING: Let me just interrupt briefly. Could you bring up NRC Exhibit 000062, please? Thank you.

MR. HENDRICKSON: Next slide, please. Oh, the one immediately previous would be fine. It would be slide two, I guess.

Yes. So, again, I'm Paul Hendrickson, and I'm going to be talking about energy alternatives, and alternative sites. Lance Vail, to my left, will be talking about the system design alternatives. Next slide, please.

This slide just has some of the bases for considering alternatives. I didn't intend for this to be a comprehensive list, but it does point out some of the ones. The most important basis, of course, is Section 102 of NEPA. There are also requirements in 10 CFR, both for Applicants, and for the Staff, in preparing Environmental Impact Statements, and addressing alternatives. Chapter 9 of Reg Guide 4.2 calls for an ER to include an analysis of energy and site alternatives. And Sections 9.2, 9.3, and 9.4 of the Environmental Standard Review Plan provide Staff Guidance on assessing alternatives. Next slide,

please.

Okay. In the EIS, the Staff considered energy alternatives, alternative sites, system design alternatives. In addition to that, there's brief discussion of the No-Action alternative. Under the No-Action alternative, there would be no impacts at the Vogtle site, other than impacts which are now classified as non-construction after the LWA rule came out in late `07. Those type of activities could go on without NRC approval, so, potentially, there could be impacts associated with those kinds of activities. Impacts could occur at alternative sites, if the Applicant were to pursue construction at an alternative site under the No-Action alternative. Under the No-Action alternative, the benefits foreseen by the Commission in establishing the ESP process would not occur, because no ESP, or, in this case, also, no LWA would be issued. Next slide, please.

Now, on Slide Five, the first point I want to make regarding the energy alternatives is that this was an optional thing. The ESP applicants are not required to include an analysis of energy alternatives in their ER. Southern, of course, chose to do that, but they had -- that was an optional decision on their part. Since it was included in the ER, the Staff's

Environmental Impact Statement also considers energy alternatives.

In the EIS, the Staff considered energy alternatives that would require new generation, and alternatives that would not require new generation. And the EIS also uses the same target value of 2234 megawatt electric baseload power that Southern used in their ER. Next slide, please.

Turning now to energy alternatives that would not require new generation, the Staff considered four options. The first of these would be to purchase needed power from others. Chapter 8 of the EIS, which is the Need For Power chapter, reached basic conclusion on purchasing needed power from others, and, basically, said that that really was not a reasonable option. And the Chapter 8 analysis took account of Georgia Power's Integrated Resources Plan, which was approved by the Georgia Public Service Commission in July of `07. So, the Staff, essentially, concluded that, as did the Applicant, that purchasing needed power from others was not a reasonable alternative to new baseload generation.

Another option under this general category would be reactivation of retired plants. And the Staff noted here that that would be difficult, and

costly to do, and, in many cases impractical because current environmental requirements would be difficult for a retired plant to meet. And most often, a retired plant would also be considerably smaller than the type of capacity they're talking about with the two new nuclear units.

Another option would be extending the life of existing plants. The ER had some information about this, and the only Georgia Power plants that are currently slated for retirement are two old coal plants in the Atlanta area. They actually came on line in the 1960s. Again, if these were to extend their operating life, you would be faced with, probably, the same issues you would be for reactivation of a retired plant. You'd have to be looking at probably costly, and difficult environmental requirements to meet. And I would also note that extending the operating life would not provide new capacity to meet growth and demand. Next slide, please.

The fourth option that the Staff considered in this general category was conservation and demand side management programs. And these were also taken into account in Chapter 8, the Need For Power analysis. Georgia Power's Integrated Resources

Plan, which was approved by the Georgia Public Service Commission accounted for demand side management. And the message there is that although demand side management is important, it's not adequate to meet growing demand over time. And that's what the Georgia Public Service Commission concluded, and the Staff also concluded that. So, the Staff's general conclusion in this area of alternatives not requiring new generation was that the options not requiring new generation are not reasonable alternatives to a new baseload nuclear power plant.

JUDGE TRIKOUROS: Question. From the Public Service Commission's viewpoint, two nuclear plants were required. That was what they approved. Is that correct?

MR. HENDRICKSON: The decision of the Public Service Commission, I believe, they didn't specify that Southern should -- maybe, Mr. Moorer, correct me if I'm wrong, but I don't think they specified that two nuclear units should be constructed at the Vogtle site. They said that the nuclear option was a reasonable option to meet growth and electricity demand for Southern to consider. That's, essentially, my understanding of what they said.

JUDGE TRIKOUROS: But they would have

approved 2,200 or so megawatts electric of baseload power, basically.

MR. HENDRICKSON: Yes. The Integrated Resource Plan process looks out over the 20-year period, so they would have indicated that that was a reasonable thing to do, to approve that much baseload power over this period of the Integrated Resource Plan.

MR. MOORER: Your Honor, if I might, the Public Service Commission on March 17th, 2009 issued an order approving the 2,234 megawatts for Vogtle Units Three and Four. So, that order has now been approved.

JUDGE TRIKOUROS: Right. Does that signal the preference of nuclear power by the Public Service Commission? I mean, they agreed to 2,200 megawatts of baseload, I would think. If Vogtle had been a coal plant, that would have met the criteria?

MR. MOORER: In the Integrated Resource Plan that Mr. Hendrickson talks about, the options included coal, and nuclear. And nuclear was chosen as the preferable alternative. So the order that was issued on March 17th, as I understand it, was an order to construct the two nuclear units.

JUDGE BOLLWERK: Maybe this is a good point. Maybe you've sort of suggested what the answer

is, but I raised before the question of the seeming decrease in demand that's going on right now, in part, because of the economic situation. How does that play into the analysis that's going on here?

MR. HENDRICKSON: Well, the Staff used the information that they had available. And that, again, was the approval of the Georgia Public Service Commission of Southern's 2007 Integrated Resource Plan. And events subsequent to that, the Staff really didn't -- well, for one thing, the manuscript for the draft EIS was completed in August of `07, so that's one element here. And we -- in preparing the document, the Staff relied on what they had available at the time the manuscript was completed, and that was, essentially, the Public Service Commission's approval of the 2007 plan, Integrated Resources Plan.

JUDGE BOLLWERK: So I take it what you're telling me is that this -- in order for this, if there is any impact relative to the economic situation, that's something that the Georgia PSC has to take into account?

MR. HENDRICKSON: If they have taken into account, I'm not aware of it, so I really can't speak to that.

Okay. Now, I believe we're on Slide

Eight, now. The Staff also gave attention in the Environmental Impact Statement to energy alternatives that would require new generating capacity. The principal options that were considered by the Staff were new pulverized coal generation, and natural gas combined cycle generation at the Vogtle site. The Staff also considered a variety of other energy options that are shown there on the slide and, in addition, a combination of energy options. Next slide, please.

Staff used the same small, moderate, large impact characterizations that were used in Chapter 4 and 5 of the EIS. They were used for the analysis of energy alternatives. And, I might add, they were also used in the analysis of the candidate sites. Next slide, please.

This slide shows the Staff's impact characterizations for pulverized coal fired power generation at the Vogtle site. And this would be, essentially, the same capacity as the proposed two nuclear units. And I just point out a couple of areas where the impact characterizations here differ from the nuclear plant characterizations. The first one, and perhaps the most important, would be in the area of air quality. A coal fired power plant would have

sulfur oxide emissions, nitrogen oxide emissions, carbon monoxide, particulate matter, as well as carbon dioxide. And the Staff characterized the emissions from a coal fire power plant as moderate, and, in comparison, the Staff characterized emissions from a nuclear power plant as small.

Another important impact category, that differentiated coal fired power generation from nuclear generation was waste management. A coal fired power plant would have waste from ash and scrubber sludge, and the Staff characterized the impacts here as moderate. And, in comparison, the Staff characterized the waste impacts from a nuclear generating plant as small.

The third one I wanted to just call out was the -

JUDGE TRIKOUROS: May I interrupt?

MR. HENDRICKSON: Yes.

JUDGE TRIKOUROS: When you characterize the waste impacts of a nuclear plant as small, are you taking into account spent fuel storage, as well?

MR. HENDRICKSON: Yes.

JUDGE TRIKOUROS: So, was the assumption that ISFSIs would be utilized on the site, or that there would be Yucca Mountain?

MR. HENDRICKSON: The Staff took account of the waste confidence rule, I guess would be the best way to say it.

JUDGE TRIKOUROS: All right. Thank you.

MR. HENDRICKSON: The other impact category I wanted to call out was ecology. The Staff characterized the impacts here for coal fired power plant as moderate. There would be impacts both from mining the coal, and from the ash disposal. And, as we've seen in the news lately, from the TVA plant, the ecological impacts with ash disposal can be quite significant, in some cases. For a nuclear plant, the Staff characterized impacts for ecology as small to moderate. Next slide, please.

This slide shows the Staff's impact characterizations for natural gas fired generation, natural gas combined cycle. And, again, air quality would be an important distinction between the natural gas plant and a nuclear plant. The air impacts from a natural gas facility would be smaller than a coal fired facility, but they would still be considerably larger than what would be expected from a nuclear plant. A gas plant would also have the emissions of sulfur oxide, nitrogen oxide, carbon monoxide, particulate matter, and in smaller quantities, but,

again, substantial enough that the Staff characterized the impacts as small to moderate, in this case, in comparison to a nuclear plant where the Staff characterized them as small.

And the other one I wanted to call out here was in the area of socio economics. The beneficial aspects here, which is primarily related to property tax revenue, which would go to the various taxing jurisdictions, would be somewhat smaller for a gas fired plant, as compared to a nuclear plant. And the Staff characterized them here as moderate beneficial, and for nuclear power plant, the Staff characterized them as large beneficial. Next slide, please. This will be Slide Twelve.

This slide shows the other generation alternatives that were considered by the Staff. And I put just a word or two next to each one of them, just to provide a brief synopsis of why the Staff did not consider them to be reasonable alternatives to a 2,200 megawatt baseload nuclear plant. Oil, of course, would be very expensive. The Energy Information Administration does not project any new oil fired generation over the next 30 years or so in the United States.

Wind, most of Georgia is in a Category One

Class, as assessed by the Department of Energy, which has a very small potential for wind energy. And wind also has a low capacity factor, compared to that of a nuclear power plant.

Solar, again, based on the words in the EIS, the Department of Energy has indicated that solar has some limited uses for things like water heating, or photovoltaics, but not for baseload power generation. Also, solar has a relatively low capacity factor in comparison to a nuclear plant.

Hydro power, there is a -- if every practical hydro power resource were developed in Georgia, it would be approximately 600 megawatts, so that, again, is quite a bit smaller than what we're talking about with the two new nuclear units, and hydro power also has significant environmental impacts associated with it.

Geothermal, there really is no suitable eastern resource for a geothermal baseload generating plant. Wood, municipal solid waste, and biomass, the plants are considerably smaller than the nuclear baseload units that we're talking about. And, finally, with fuel cells, again, going on Department of Energy analysis, they're just not economically or technically competitive at the present time. Next

slide, please.

The Staff's conclusion regarding the other generation alternatives is that individually, they are not reasonable alternatives to a new baseload nuclear plant.

JUDGE TRIKOUROS: Those fuel cells that you indicated on the previous slide would be fed by natural gas?

MR. HENDRICKSON: I guess I'm not prepared to answer -- to give you a definitive answer on that. The Staff used the information that was on the Department of Energy's web page in arriving at their conclusions. I think that information is cited in the Environmental Impact Statement. One thing, the size is considerably smaller than what we're talking about here with the nuclear units.

JUDGE TRIKOUROS: Whether it be natural gas, or hydrogen, or anything else, the conclusion would still be the same.

MR. HENDRICKSON: Correct. Yes. Okay. We're on Slide Fourteen, now.

The Staff also considered a combination of energy sources. Just by way of background here, going back to the license renewal Supplemental Environmental Impact Statement, a combination of energy sources has

been considered in the NRC Environmental Impact Statements for the last decade or so, and the tradition has been to only consider one combination of energy sources. Of course, there are many possible combinations of energy sources.

CEQ Guidance is to keep EISs at a reasonable length. The direction is not to make them encyclopedic, to keep them analytic. And the Staff's practice has only been to look at one combination, but make that a reasonable combination, and a representative combination. And the Staff chose these energy sources, and believes that this represents a representative combination of alternative energy sources. And this would be a combination of natural gas combined cycle, wind energy, biomass, and municipal solid waste, hydro power, and conservation. One could argue that these numbers are not the best numbers that could be used, but the Staff does think they're at least representative numbers for this particular area, southeast area of the country.

JUDGE TRIKOUROS: The upper limit for wind energy and solar, does the Staff have any kind of number for the upper limit of that in terms of grid stability? I know there are studies overseas that indicate somewhere between 10 and 20 percent wind,

solar would result in grid instability, and would be untenable without new technologies that don't exist for storage. Does the Staff have any position on that at all?

MR. HENDRICKSON: About all I can say is the Staff tries to take a site-specific look at what the alternative energy sources -- what the good ones might be. For example, in Texas, where wind is a lot more favorable, this combination of energy sources would probably give more weight to wind energy than it would be in Georgia, where wind is really not a favorable source.

JUDGE TRIKOUROS: Right. But Texas has experienced grid instability a number of times, so you don't take that into account, however. That isn't -- 60 megawatts of wind that you have on this slide is based on what?

MR. HENDRICKSON: Based on the study performed with Georgia Tech that actually indicated that up to a maximum of 180 or so megawatts was feasible for offshore wind generation in Georgia.

MR. MOORER: Your Honor, can I add something to that, please? I think that study actually was for the land-based, the 171, that the numbers were land-based. The offshore was limited.

It's developmental at this point in time, but the number that's in the ER refers to land-based.

MR. HENDRICKSON: This question is answered as part of the Staff's written responses, and I think there's actually a quote in the Staff's written response to the question that was asked, that quotes a paragraph out of the Southern Georgia Tech study that indicates the range of feasible wind resources offshore.

JUDGE TRIKOUROS: I'm aware of that. I was curious more with respect to the limits, if the Staff applies any kind of a percentage limit in terms of wind, but that's fine.

JUDGE BOLLWERK: I also note something, that there's nothing about solar, and the reason for that?

MR. HENDRICKSON: The reason for that, I think that reflects the analysis of solar in the Environmental Impacts, that, basically, the Department of Energy concluded that it has very limited application in Georgia. The more suitable solar areas would be in the western United States.

MR. MOORER: Your Honor, if I could just clarify for the record, I think Mr. Hendrickson is referring to, if I recall, the number, the 180

included 171 megawatts of land-based wind energy, and then another 10 megawatts of offshore that was known to exist, or in the process of being developed. That's where the 180 came from.

JUDGE BOLLWERK: And I take it that Southern agrees with the analysis relative to solar?

MR. MOORER: Yes, sir, we do.

MR. HENDRICKSON: Next slide. Excuse me. Did you -- next slide then, please.

The next slide shows the Staff's impact characterization for a combination of power sources. And, again, you'll see that the air quality impact category has a higher classification, small to moderate, than the small that the Staff assigned to nuclear. Air impacts would come from the natural gas generating facilities, and also from the solid waste generating facilities.

Waste management, again, is somewhat greater, small to moderate, as compared to small. Waste impacts would come from -- there aren't many waste impacts from a natural gas power plant, but there are some. In particular, the SCR catalyst could be -- that's used for nitrogen oxide control, could be a waste. There would also be residues from solid waste combustion, that would be a waste product that

would have to be dealt with.

And, finally, in the area of socio economics, same reasoning applied here as applied in the previous slide for natural gas plant, that property tax revenue benefits would be somewhat less than for large baseload nuclear power plant. Next slide, please.

Now, on Slide Sixteen, this slide has a comparison of the Staff impact characterization for construction and operation of new nuclear, coal, natural gas, and a combination of alternatives. I won't read all through that.

JUDGE BOLLWERK: Before you move on to the site selection process, let's talk about a couple of things here. What's the Staff's position relative to carbon dioxide, and how that's analyzed relative to alternatives?

MR. HENDRICKSON: The Environmental Impact Statement -- well, carbon dioxide currently is an unregulated emission. The Environmental Impact Statement has estimates of what alternative coal and gas, as I recall, the Environmental Impact Statement has estimates of the amount of carbon dioxide that would be emitted. And that, I guess, was just brought up as a point of information. Until it becomes a

regulated pollutant, I'm not sure that that practice in terms of preparing the Environmental Impact Statements will change. There will continue to be disclosure of what the carbon dioxide emissions would be, but it's not taken into account in assigning the Staff's impact characterizations currently.

JUDGE BOLLWERK: Let me go back to solar, again, one second. Can you give me the basis on which, from Southern or the Staff, as to why you don't consider solar to be a viable part of the energy mix here in terms of a combination? I recognize you said the Department of Energy, what is DOE's analysis, or why does Southern have a different view of that? What is Southern's view of that?

MR. MOORER: Southern's view of that is, as you recall, Judge, we included Southern in the mix of alternatives. We chose not to include a number of alternatives in a combination. We felt like that was untenable. It's just our opinion. We felt like that a combined cycle gas wind alternative was a suitable demonstration of a combination. The more elements you add to the combination, the more difficult it becomes to manage.

Solar is a viable technology, I think, as the Staff stated, for small-scale water heating, and

home applications, but it does not have large-scale generation capabilities. It's fairly limited in terms of the amount of solar that can be produced from the site. So we did not include it in the combination mix.

JUDGE BOLLWERK: Anything the Staff wants to say in that regard?

MR. HENDRICKSON: I agree with what Mr. Moorer said. When we considered combinations, we tried to select -- the Staff tried to select alternatives that were considered reasonable for this location of the country, and we thought the ones that were selected were more reasonable than solar. That's all I can say.

JUDGE BOLLWERK: What about biomass? You had some in there. What is your -- we'll start with Southern. What is your view on the use of biomass as an alternative?

MR. MOORER: Biomass, we believe, is a viable alternative. In fact, Georgia Power is in the process of bringing a biomass plant on line in south Georgia now. But those plants are limited both in capacity factor, and in size. Typically, they're less than 100 megawatts in capacity. And, as a result, we didn't feel like they were suitable for the

alternative combination. We felt like there were better combinations available.

JUDGE BOLLWERK: What would the Staff like to say about biomass, in terms of using it in part of the combination?

MR. HENDRICKSON: The Staff did include it, and I believe the number was 100 megawatts biomass, plus municipal solid waste. And it was included because it was viewed to be a viable alternative for this area of the country. That's why it was included in the mix.

JUDGE BOLLWERK: All right. Anything further on alternatives in terms of combinations, singly, or in combination? All right. At this point, then let's go ahead and have the Staff talk about the site. I think the next part of your presentation is on the site selection process.

MR. HENDRICKSON: The next slide. The next slide just gives the Staff's conclusion for energy alternatives.

JUDGE BOLLWERK: I'm sorry. I'm getting ahead of myself. I apologize.

MR. HENDRICKSON: From an environmental perspective, none of the viable energy alternatives for generating the 2,200 megawatts electric or

baseload power is clearly preferable to construction of a new nuclear power plant.

JUDGE TRIKOUROS: Can I ask you, if that were half that, half the 2,234, would you still -- would you think that that would be the same conclusion that you would reach?

MR. HENDRICKSON: The Staff kind of responded to this in the written responses, and I think the response there was that we'd have to redo it, I think. That the small, moderate, large characterizations could change if you were talking about a smaller size plant. I guess, just in general, I think it would be likely that this conclusion would not change, but I wouldn't want to say that categorically.

JUDGE TRIKOUROS: Thank you.

JUDGE BOLLWERK: All right. Are we ready to move on to Slide Eighteen, then?

MR. HENDRICKSON: Yes. Okay. Moving on to Southern's site selection process. First of all, addressing the region of interest question, the term "region of interest" is actually defined in Reg Guide 4.2. In fact, I have here in my notes that it's defined on page 9-1 of Reg Guide 4.2, so that is the definition that the Staff utilizes at the present

time. I mean, I've actually got a quote here in my notes, maybe I'll just read it. It's the "geographic area initially considered in the site selection process. This area may represent the Applicant's system, the power pool or area within which the Applicant's planning studies are based, or the Regional Reliability Council, or the appropriate sub-region or area of the Reliability Council." So there is actually a definition of what a region of interest is in the Reg Guide, and the Staff follows that.

JUDGE TRIKOUROS: Right. Which does allow a broad -

MR. HENDRICKSON: It is broad, but it's -- I think it was asked earlier why some of these ESP applications had such a huge, broad area. And I don't have a good explanation for that, because I'm not sure they fit with this definition of ROI that's in the Reg Guide.

JUDGE JACKSON: It seems like ownership is an important issue. And I didn't hear in that Reg Guide, ownership. Does the Staff accept that owning the site is an acceptable and important criterion? It gets back to the question that Judge Bollwerk asked, what if there's a wonderful site in Indiana, but Southern doesn't happen to own it, some other utility

owns it. In the Staff's view, is ownership then an acceptable and important criterion?

MR. HENDRICKSON: Well, in terms of a plant in Indiana, I mean, going by this ROI definition in the Reg Guide, that really wouldn't fit with the ROI definition in the Reg Guide. It's not part of the applicant's system. It's not part of the Reliability Council that serves this area, so it's an outlier.

In terms of ownership of the site, the Staff recognizes that's an important consideration for applicants, but it's not absolutely a requirement that a candidate site be owned by the applicant. There's nothing in the ESRP 9.3 that says that an applicant has to own each candidate site. Or, for that matter, each potential site.

JUDGE JACKSON: Forget about Indiana. What if in Georgia there were -- or in Alabama there were a different utility that owned a site, had nuclear plants, would ownership be a legitimate screening factor then?

MR. HENDRICKSON: Well, again, the Staff recognizes that's important to an applicant, but it's not a necessary criterion to establish a site. I believe that question of ownership was addressed, actually, in the Commission's decision on North Anna,

if memory serves me correctly, and the Commission, when they made that decision, recognized that there are practical considerations that an applicant goes through, and ownership is one of those considerations.

MR. MOORER: Judge, if I might add, the definition that Mr. Hendrickson read refers to the planning areas, the generation areas, the service areas, those type of things, which implies ownership, although, ownership, I agree, is not a stated criteria. But, as I stated before, Southern has plants both in the regulated and the non-regulated arena. And in the non-regulated arena, the Southern Power area, the plants that we have are not large enough to meet the criteria, or they might have been considered. We really stayed within our regulated footprint, if you will, and that's the region of interest that's defined, is basically the Southern Company regulated, controlled by the Public Service Commissions in the various states, the footprint associated with that.

JUDGE JACKSON: That makes sense, and I wouldn't think that putting a lot of effort into evaluating an alternative site that someone else owned that was very attractive, I mean, why would they sell it? It just seems like ownership would be an

important consideration.

MR. MOORER: Sir, that was our conclusion.

JUDGE BOLLWERK: Does the Staff want to comment on that?

MR. HENDRICKSON: The only thing about that, there is a possibility of an applicant taking an option on a piece of property, and not actually owning it.

JUDGE BOLLWERK: All right.

MR. HENDRICKSON: As I think I mentioned at the start of my presentation, the Environmental Impact Statement says that the region of interest is Alabama, and Georgia, and Mississippi, and the basis of that statement was the Applicant's Environmental Report makes that statement.

In terms of identification of potential sites, Mr. Moorer's presentation went through a whole lot of that. There were 12 potential sites that Southern came up with, including the one greenfield site, the Barton site. I don't think I want to repeat all the discussion that went through to get to those 12 sites. I think Mr. Moorer covered it adequately.

JUDGE TRIKOUROS: But if an Applicant had a three-state operating area, and chose one state for the region of interest, possibly because of the

availability of transmission and distribution. I don't know, any number of reasons. Would that be a problem for the Staff?

MR. HENDRICKSON: Not necessarily, no. Actually, the SRP calls for an additional step in the process, which Southern didn't elect to use, but it is the selection of a candidate area. And, in this case, the candidate area effectively turned out to be Georgia and Alabama, because no sites were chosen in Mississippi. And that kind of rationale could perhaps -- but the situation you're talking about where the region of interest started out to be a three-state interest, but their candidate area was narrowed down to one state.

JUDGE TRIKOUROS: Okay. So you're defining a candidate area as a subset of -

MR. HENDRICKSON: Region of interest, yes. And that is in the ESRP 9.3.

JUDGE TRIKOUROS: And that's acceptable.

MR. HENDRICKSON: Yes.

JUDGE TRIKOUROS: But you do look at such things.

MR. HENDRICKSON: Yes. Okay. I think we're ready for Slide Nineteen.

As Mr. Moorer talked about, Southern

eliminated the potential sites with coal fired power plants, because they didn't offer as many advantages as the nuclear sites, and I've listed them there with four bullets that repeat some of the points that he made in his presentation. And the resulting candidate sites were Southern's Farley, Hatch, and Vogtle nuclear sites, and the Barton greenfield site located in Alabama. Slide Twenty, please.

JUDGE TRIKOUROS: I'm sorry to keep interrupting you. Does the Staff just basically agree with that? I mean, the -- do you do anything beyond -- in your evaluation, do you do anything beyond just looking for reasonableness? I mean, do you agree with the general conclusion that a coal fired plant site is not as acceptable as a nuclear plant site; therefore, you would not take that any further? How far do you go on that?

MR. HENDRICKSON: The Staff is -- primarily, the thinking, the Staff is following the guidance in the ESRP 9.3. We're looking to see that the Applicant has a reasonable process to go from region of interest, to candidate area, to potential sites, to candidate sites, to the proposed site. We want to see that that process is a reasonable one that can be justified and backed up.

Southern stated in this case that all of the potential sites had adequate land available, they had adequate water availability, and the Staff took that at face value, so our assumption was that those -- all of the 12 potential sites met those broad criteria. Then they gave the reasons for why the coal plants were eliminated. And I think Mr. Moorer has talked about all that. And the Staff's conclusion was that that reasoning was a reasonable basis for screening the potential sites down to the four candidate sites.

JUDGE TRIKOUROS: But, if there were a coal site that had an obvious superiority in terms of aquatic impact, water issues, you would look -- would you look at that, and go back to the Applicant with an -- asking for more evaluation, or do you just take it on faith, so to speak, that a coal site is not as good as a nuclear site?

JUDGE BOLLWERK: I think part of the question here is how much of an audit do you do on what's generated by the Applicant, or you simply take it as face value.

JUDGE TRIKOUROS: Right.

MR. HENDRICKSON: In going from potential sites to candidate sites, the focus is on the process

that the Applicant used, and whether that process seems reasonable to the Staff. The Staff does not go out and take a look at all of the potential sites. The Staff focuses on the process to screen down to candidate sites, whether the criteria that were used seem reasonable to the Staff, whether the process, and whether there was any concern that the Applicant was deliberately excluding a site that might be obviously superior. If the Staff is satisfied that the process appears to be okay, then the Staff's focus of providing examination of the sites is limited to the four candidate sites, or in some cases there could be more than four candidate sites. In this case, there were four candidate sites.

JUDGE BOLLWERK: So then, again, if one of Southern's criteria was they wanted 2,000 acres for a site, you're not going to go in and look at the sites they rejected to see if any of them were or weren't 2,000 acres in terms of the reason they gave as a screening criteria.

MR. HENDRICKSON: The Staff did not do that in this case, no.

MR. MOORER: Your Honor, just to clarify, I want to make it very clear that we didn't categorically exclude coal sites. We looked at each

individual, of the 12 that were listed, were looked and compared, and were screened based on the criteria that we talked about. So there was not -- we didn't look at coal, in general, and categorically exclude coal. It was a case-by-case examination of those existing sites, which I think goes to your question.

JUDGE TRIKOUROS: Thank you.

JUDGE BOLLWERK: All right. We're still on Slide Twenty, I take it?

MR. HENDRICKSON: Yes. Okay. As Mr. Moorer talked about, he said that they did their own screening of the candidate sites, they used various impact criteria that I've shown here in the first part of this bullet. The Staff did their own review of the four candidate sites, and the Staff's review was an independent review. The final screening resulted in Vogtle as the proposed ESRP site. And ESRP 9.3 allows for the possibility of identifying an existing nuclear power plant site as the proposed site. And Southern also took advantage of that, but that still doesn't get away from the process of going to the candidate sites, the proposed sites to the candidate sites and comparing them. And the Applicant did that, as well as the Staff, compared the proposed site to the three alternative sites. Slide Twenty-one, please.

Okay. The Staff's conclusion regarding site selection was that Southern used a logical process to identify potential and candidate sites, and a proposed site. The candidate sites all appear to be potentially licensable sites for new nuclear generation, and that Southern's site selection process was reasonable, and resulted in candidate sites that are among the best that could be reasonably found in the region of interest. And that terminology, "among the best that could be reasonably found" is out of the Environmental Standard Review Plan 9.3. Next slide, please.

This slide shows the Staff's characterization of construction impacts at the candidate ESP sites. Again, the Staff made these characterizations independently; although, such characterizations were included in the ER. The Staff took an independent look at doing this. The Staff visited each one of the candidate sites, reviewed the scoping comments, comments on the draft EIS. Staff did its own literature review. Staff consulted with agencies in coming up with their characterizations, and the Staff followed the guidance in ESRP 9.3.

These Staff characterizations were done by subject matter experts at PNNL, and concurred in by

NRC Staff people. They're not all done by me, in any case. There are a variety of subject matter experts at the laboratory that made these characterizations. And this information, by the way, is right out of Table 10.1 in the Environmental Impact Statement. Next slide, please.

This is just a continuation of the impact characterizations from the previous slide. And, again, this is out of Table 10.1 in the Environmental Impact Statement. Next slide, please.

Now, on Slide Twenty-four. This would be the Staff's characterization of the operational impacts at the four candidate sites. And everything I said previously applies to this, also. The Staff made these impact characterizations independently, and that not all of the impact characterizations are identical to what Southern's impact characterizations were. Next slide, please.

Slide Twenty-five. This is just continuation of the operational impact characterizations from the Staff. Slide Twenty-six. This slide has a summary of the Staff's impact characterization for construction and operation at the four candidate sites, and also for the No-Action alternative. And the source of this slide is Table

11.4 in the Environmental Impact Statement. Next slide, please. This is a continuation of the prior slide. Slide Twenty-eight, please. This would be the Staff's conclusion regarding site selection, is that while there are some differences between the Staff's characterization of environmental impacts at the proposed site, and at the alternative ESP sites, none of the differences is sufficient for the Staff to conclude that any of the alternative sites would be environmentally preferable to the proposed Vogtle ESP site. And given that none would be environmentally preferable, it would follow that none would be, obviously, superior to the proposed Vogtle ESP site.

JUDGE BOLLWERK: In looking at the alternatives sort of summarized and hearing all these, what was the main Staff difference between -- the main difference between the Staff's analysis, and the Southern analysis, in terms of you said while they weren't 100 percent the same, what differences were, or what significant difference did you find?

MR. HENDRICKSON: I think that, actually, is in our written response. It was one of the questions, I think. I remember drafting that. That's in one of the written responses. And I pointed out to specific examples when I prepared that, of where the

Staff's impact characterizations did differ from the Applicant's. And I don't have that in front of me, but it is in the Staff's written response, which is in the record.

JUDGE TRIKOUROS: So, just going back to this region of interest, again, I just want to get sort of a conclusion on it in my mind. Would it be correct to say that the Staff would prefer that a region of interest be broader, and then a process be utilized to reduce it to a candidate list, and eventually to a site, rather than to just start out with a smaller region of interest, sort of implicitly doing an evaluation, and coming in with a smaller region of interest because of factors like transmission, or other factors. Would that be a correct characterization of how the -- what the Staff thinks about that?

MR. HENDRICKSON: That definition that I quoted earlier from Reg Guide 4.2 is still applicable. That's an old Reg Guide, but that is still in effect, and the Staff -- I guess the Staff's position would be that the Applicant's are to follow that definition of region of interest in the Reg Guide, or else have a reason why they're not following it. And broader is better than small, because broader leaves open the

possibility of a broader arrangement of potential sites to be included. And then, also, that the Applicant would follow the process in ESRP 9.3, which lays out the steps to be taken in going from a region of interest, to a candidate area, to potential sites, to candidate sites.

JUDGE TRIKOUROS: So, the way that Southern did that was along those lines acceptable to the Staff from that point of view. They started with a broader area, and came down to candidate areas, which were the two states, rather than the three states. And, eventually, led to one site.

MR. HENDRICKSON: Yes.

JUDGE TRIKOUROS: And that would be the preferable way to do it.

MR. HENDRICKSON: Yes. Although, with sort of the caveat that I mentioned earlier, that they didn't formally call out their candidate area, but the Staff kind of inferred that.

MR. MOORER: Your Honor, if I could add. The words in the Environmental Report, if I recall, in Chapter 9 use the word "region of interest", and say that it is the Southern Company territory. And, actually, if I recall, it names all four states. It says Alabama, Georgia, Mississippi, and the Panhandle

of Florida. But then the following sentence says, "the three-state area", and I'm not sure how that wound up that way, but we considered all four states initially.

JUDGE TRIKOUROS: I thought it was a two-state area initially.

MR. MOORER: Initially, actually, the way it worked out is the Florida and Mississippi sites are all small sites, either combined cycle or small coal sites, and they're all less than 1,000 megawatts, so they screened out of the initial screening, anyway. Actually, it wound up being a two-state area once the first level screening was done, but I just wanted to clarify that, to make sure that you understood.

JUDGE TRIKOUROS: Yes. That's really the issue for me, is that one could screen before issuing the application, and coming up with two states. And then that becomes the ROI. When, in fact, the correct way to do it, as I understand it, is not -- is to include that screening in the application, and then legitimately reduce it to a two-state region of interest.

MR. MOORER: Yes, sir. That was my point for bringing it up. That's exactly what we did. We started with the four-state Southern territory, and

then we began our screening process. We looked at 40-something sites, initially, and the map that I showed, showed the 40-something sites. Many of those were very small fossil sites, and those screened out very quickly in the process.

JUDGE BOLLWERK: All right. Thank you. All right. Are we done with Slide Twenty-eight?

MR. VAIL: Slide Twenty-nine, please. I'm going to be discussing the system design alternatives review. In that review, normally we discuss intake alternatives, discharge alternatives, water treatment alternatives, as well as the cooling system alternatives. In this discussion, based on the Board's request, I'm focusing on cooling system alternatives in this review.

As we've discussed throughout, the proposed alternative was a natural draft wet tower, and the Staff in primary impact areas associated with water quality, water use, and aquatic eco systems had determined that impact was small. And that, to an extent, governs the depth that we do the rest of the alternatives review.

We did look at, or make a very quick screening elimination of once-through based on the discussions that we've had last week. I think you can

all appreciate that once-through is not suitable for this site.

We also looked at wet/dry towers. And, again, similar to the conversation that we had with the dry towers in the EC 1.3 contention, we found some advantages, and some disadvantages. I want to point out, however, that the Staff in their consideration of wet/dry towers uses a slightly different definition of the system. Mr. Moorer is right, that the sort of common usage of the terminology "wet/dry towers", is used the same as plume abatement towers. There's also what probably is sort of better called parallel cooling systems, which North Anna would basically be sort of an example, where you, basically, have a dry sector, and a wet sector. In that case, the wet sector actually is a plume abatement tower, too. So, we sort of look at it as a continuum of how much load you're going to be handling from the dry tower to the wet tower, so it's basically a continuum that moves from somewhere between the dry and the wet alternative.

However, in this case, as I mentioned, we determined a small impact. And there are some adverse impacts, as you deal with the dry side in terms of the performance of the system, the cost, and the parasitic

loads. Although, clearly, this would reduce water-related impacts, because at some point, again along te scale, we would have a reduction in the overall water withdrawal and consumptive use as you move towards on this continuum up to a full dry system.

Also, and I know there was a Board question about cooling ponds. Our primary criteria there was the relief of the site was significant enough that we didn't believe cooling ponds would be appropriate. We look at cooling ponds in places like Illinois, or where you have huge tracts of very level area. This site has enough relief that it wouldn't be suitable, was the Staff's determination.

So, Slide Thirty. To conclude, the Staff determined that the impacts to water use, and water quality, and aquatic eco systems from the proposed wet cooling system were small. And, again, any potential advantages of the wet/dry, hybrid system would be in those three resource areas, water use, water quality, and aquatic eco system. Therefore, the Staff concluded that given the environmental disadvantages of the alternative cooling systems considered, that there would be no environmentally preferable alternative to the proposed wet cooling system. And that's all I have.

JUDGE BOLLWERK: We've been at this a little over two hours since we started. Why don't we go ahead and take a 10-minute break at this point. We'll come back at that point, see if we have any further questions for this particular panel. And, if not, then we'll move on to the next panel. Let's take a 10-minute break right now.

(Whereupon, the proceedings went off the record at 10:39:39 a.m., and went back on the record at 10:52:28 a.m.)

JUDGE BOLLWERK: All right. Let's go back on the record, please. All right. We've taken a brief break, and there's a couple of additional questions I think I have. I don't know if the other Board members do.

Mr. Hendrickson, just for the record purposes, I'd ask you a question relating to Slide Twenty-eight about the differences between the Staff's characterization of environmental impacts for the proposed site, and those for Southern. And you'd referred us, I guess, to the NRC Staff questions that are found in Exhibit NRC000057. And we were looking through those briefly, and I couldn't spot the exact answer that you were referring to. And I wondered maybe you could take a quick look, if you want to take

a quick look at that exhibit, and maybe you can let us know which answer that was just for the record purposes.

MR. HENDRICKSON: I'll do that.

JUDGE BOLLWERK: Okay. Why don't you do that for -- if you need to grab a copy of the exhibit, do you have it in front of you? This would be 57. We can actually bring it up, but it's fairly lengthy. It's like 125 pages. I don't want to kind of -- I don't think thumbing through that is going to be useful. And maybe while we're doing that, I can ask Mr. Moorer a couple of questions, and then we'll come back to that.

The IRP process with the State of Georgia, the RP stands again for what, so I get it right.

MR. MOORER: Integrated Resource Plan.

JUDGE BOLLWERK: That was just completed, I take it.

MR. MOORER: Yes, sir. The 2007 plan was approved.

JUDGE BOLLWERK: All right.

MR. MOORER: It's a three-year process.

JUDGE BOLLWERK: So it started back in 2004 then?

MR. MOORER: Yes, sir, 2004 was the

previously approved plan. There's a three-year process where the entire plant is reviewed and approved, and there is a one-year annual review process.

JUDGE BOLLWERK: Okay. And so, the one that was just approved then would be undergoing over the next year, some kind of review in terms of the information that's in it.

MR. MOORER: Yes, sir. That's correct.

JUDGE BOLLWERK: I take it -- you mentioned -- this was, again, a 20-year view of power consumption, among other things in the area, in Georgia. And, I guess, one of the question -- well, my question is, obviously, the economic difficulties have come up fairly recently, within the last six months. When would you anticipate that that would become part of what the State of Georgia would be looking at?

MR. MOORER: Sir, based on my knowledge of the process, I would be confident that at the annual review that's conducted, I think in the fall of this year, 2009 for the 2007 plan, that that would certainly be a subject of that review. And I'm fairly confident that that was part of the debate associated with the Public Service Commission decision, the March

17th decision. I have to believe that was certainly -- people were aware, and it certainly would have been a factor.

JUDGE BOLLWERK: All right. When you say a factor, was a factor in terms of the analysis was done for the next 20 years, or a factor in terms of this is something we need to look at on our next annual review?

MR. MOORER: I think it would probably have been in the vein of something you would need to look at at the next annual review, or something they might have considered in rendering their final decision on March 17th.

JUDGE BOLLWERK: You would certainly anticipate in the next annual review it would be part of what they look at.

MR. MOORER: Yes, sir.

JUDGE BOLLWERK: All right. And, I guess, the Staff indicated that, at this point, given the information you dealt with, that the current economic situation, vis a vis power consumption, was not something you'd taken into account.

MR. HENDRICKSON: The very current -- we did not because it was subsequent to the date, the publication date.

JUDGE BOLLWERK: I think we also heard last week, although this is a general principle, that if there is some kind of significant new information that's something the Staff, notwithstanding the fact that the ESP has an environmental aspect to it, with respect to the COL process, that might be something that might come into play.

MR. HENDRICKSON: If it qualified as both significant and new information, it could.

JUDGE BOLLWERK: All right. So, if the Georgia Power Commission made some other determination relative to power consumption based on near-term or long-term aspects of it, that's something you may well take into account.

MR. HENDRICKSON: Yes.

JUDGE BOLLWERK: I'm sorry. Go ahead.

MR. MOORER: And something that we would disclose as new information.

JUDGE BOLLWERK: All right. Let's go back then. Thank you, gentlemen. Let's go back then to my question about Exhibit 57. Have you had a chance to look through it?

MR. HENDRICKSON: Yes, I did. And I believe that is in response to Question 28.

JUDGE BOLLWERK: Okay.

MR. HENDRICKSON: On the paper copy of the written response, it would be in Footnote Four on page 50.

JUDGE BOLLWERK: Let me just turn back to Mr. Moorer. Do you have any comment on Footnote Four? Can take a second to look at it, if you recall it. I don't -- in terms of the Staff's distinctions with Southern.

MR. MOORER: There were small areas where we didn't agree completely. But I think in this particular case, both cases, we felt the value should have been small, and they went to moderate. And I think that's a conservative answer, certainly.

JUDGE BOLLWERK: All right. Any response that Staff has to that?

MR. HENDRICKSON: No response, other than the Staff, as I indicated, tried to take an independent look in preparing the impact characterizations.

JUDGE BOLLWERK: All right. Anything else from the Judges? Judge Jackson, have anything further? Okay. At this point then, I believe we've concluded this presentation. Gentlemen, the Board thanks you very much for the information you provided us, and for your service to the Board. Thank you very

much.

MR. MOORER: Thank you, sir.

MR. BLANTON: Your Honor, as to the Georgia Public Service Commission proceedings.

JUDGE BOLLWERK: Yes. Do I need to hold them here for a second, or we're going to -

MR. BLANTON: I'm just going to make an offer.

JUDGE BOLLWERK: All right.

MR. BLANTON: The record in that PSC proceeding was developed between October of 2008 and just, I guess, probably late February of `09, so all the testimony was filed, and the questioning was done during sort of this latest economic downturn, so I'm confident, without having reviewed the transcript carefully. I can't cite you chapter and verse, but I'm confident that that evidence was taken in the context of what's going now. But, also, with the recognition that they're really talking about demand over the next 60 years, not demand over the next three or four years when they were considering this.

What I was going to offer to do, there is not -- the Georgia Public Service Commission has voted, but it has not issued an order as of yet, but I was going to offer to provide the Board with a copy of

its order, and any other information from that Georgia Public Service Commission proceeding that it thinks would be helpful to it.

JUDGE BOLLWERK: That certainly couldn't -- I think it would be probably useful at that point, or at least a citation where we can find it, if it's publicly available.

MR. BLANTON: It will be on their website.

JUDGE BOLLWERK: All right. Probably, just -- if it's, again, relatively readily available on their website, just a citation would probably be good, and we can take a look at it at that point. It's a matter of public record, obviously. Do they anticipate when -- is there any anticipated time that they plan on issuing that?

MR. BLANTON: I don't know that. I'll try to find out when the anticipated date of the order is going to be.

JUDGE BOLLWERK: All right. Thank you. All right. I believe that concludes that presentation dealing with Environmental Impacts of Alternatives. Let's turn then to Presentation Five. This one deals with Limited Work Authorizations and the Site Redress Plan that's related to the Limited Work Authorization. We have SNC as the lead party on this one. Southern

is the lead party. They have one witness, and the Staff has three witnesses, so why don't we go ahead and bring those individuals forward, if we could.

All right. Let's go ahead and start with the Southern witness, if we could, please.

MR. BLANTON: Your Honor, Dale L. Fulton, who's seated at the table now, is going to do the presentation for Southern Nuclear Operating Company.

JUDGE BOLLWERK: All right. Thank you, sir.

Mr. Fulton, you have, I don't think, previously been sworn. So, if you would, sir, raise your right hand, and you need to respond orally to the question I'm going to ask you. Do you swear or affirm that the testimony you'll give in this proceeding is the truth, the whole truth, and nothing but the truth?

MR. FULTON: I do.

JUDGE BOLLWERK: Thank you, sir.

MR. BLANTON: Your Honor, we have several exhibits.

JUDGE BOLLWERK: All right.

MR. BLANTON: SNC000077 is Mr. Fulton's presentation.

JUDGE BOLLWERK: All right. Let the record reflect that Exhibit SNC000077, as described by

counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000077-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: SNC000078 is Mr. Fulton's CV.

JUDGE BOLLWERK: Let the record reflect that Exhibit SNC000078, as identified by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000078-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: SNC000079 is an SNC letter numbered AR-09-1201 that sets forth the, in general, LWA schedule.

JUDGE BOLLWERK: All right. And this, I take it, was the one we had the corrected -- the listing.

MR. BLANTON: That's correct. Yes, sir.

JUDGE BOLLWERK: Then let the record reflect that SNC000079, as identified by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000079-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: SNC000080 is Chapter 2.5 of the Plant Vogtle Site Safety Analysis report.

JUDGE BOLLWERK: All right. Now, this one has numerous subsections.

MR. BLANTON: It does. We started out with four, and I think we went through G, so A-G.

JUDGE BOLLWERK: All right. And the record should reflect that SNC00080A, 80B, 80C, 80D, 80E, 80F, and 80G, all of which are portions of the Vogtle Site Safety Analysis Report, Chapter 2.5, are marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC00080A-G-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: Thank you, Your Honor. SNC000081 is the Plant Vogtle Site Safety Analysis Report, Chapter 3.8.

JUDGE BOLLWERK: The record should reflect that SNC Exhibit 000081, as described by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000081-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: And SNC000082 is the Plant Vogtle Three and Four Early Site Permit, Rev. 4, which

is the Site Redress Plan.

JUDGE BOLLWERK: And the record should reflect that SNC000082, as described by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT SNC000082-MA-BD01 FOR IDENTIFICATION.)

MR. BLANTON: And I would move to admit those exhibits at this time.

JUDGE BOLLWERK: Is there any objections? Hearing none, then Exhibits SNC000077, 78, 79, 80A, 80B, 80C, 80D, 80E, 80F, 80G, 81, and 82 are admitted into evidence.

(WHEREUPON, THE DOCUMENTS REFERRED TO, PREVIOUSLY MARKED AS EXHIBITS SNC000077-MA-BD01 THROUGH SNC000082-MA-BD01 FOR IDENTIFICATION, WERE RECEIVED IN EVIDENCE.)

MR. BLANTON: Thank you, Your Honor.

JUDGE BOLLWERK: All right. Then we have the Staff witnesses on this particular subject.

MR. MARTIN: Thank you, Your Honor. We have one new witness this time. I'll introduce them all again. Starting on your far left is Mark Notich, to his left is Michael Sackschewsky, and to his left

is Christian Araguas. This is Dr. Sackschewsky's first time.

JUDGE BOLLWERK: All right. The other two gentlemen, again, you've been sworn previously, but you do remain under oath. Dr. Sackschewsky, am I mispronouncing that?

DR. SACKSCHEWSKY: Close enough, Sackschewsky.

JUDGE BOLLWERK: Sackschewsky. All right. Sir, if you could raise your right hand, please, and you need to respond orally to the question. Do you swear or affirm that the testimony you give in this proceeding is the truth, the whole truth, and nothing but the truth?

DR. SACKSCHEWSKY: I do.

JUDGE BOLLWERK: Thank you, sir.

MR. MARTIN: Okay. The Staff has two exhibits for this presentation. First, we have NRC000063, which is Presentation Five.

JUDGE BOLLWERK: All right. The record should reflect that Exhibit NRC000063, as identified by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT NRC000063-MA-BD01 FOR IDENTIFICATION.)

MR. MARTIN: And then we have NRC000079, which is the CV for Michael Sackschewsky.

JUDGE BOLLWERK: And the record should reflect that Exhibit NRC000079, as identified by counsel, is marked for identification.

(WHEREUPON, THE DOCUMENT REFERRED TO WAS MARKED AS EXHIBIT NRC000079-MA-BD01 FOR IDENTIFICATION.)

MR. MARTIN: The Staff moves to have these exhibits admitted as evidence.

JUDGE BOLLWERK: Any objections? Hearing none, NRC Exhibits 000063 and 79 are admitted into evidence.

(WHEREUPON, THE DOCUMENTS REFERRED TO, PREVIOUSLY MARKED EXHIBITS NRC000063-MA-BD01 and NRC000079-MA-BD01 FOR IDENTIFICATION, WERE RECEIVED IN EVIDENCE.)

JUDGE BOLLWERK: All right. Anything else in terms of exhibits, or the witnesses? If not, then we can move forward to the presentation on Limited Work Authorizations, and the Site Redress Plan. And I believe Southern is the lead on this one.

MR. FULTON: Thank you, Your Honor. Could I have my presentation pulled up? Thank you.

Dale Fulton with Southern Nuclear. I'm an

Environmental Specialist working on the Vogtle 3 & 4 project. Slide Two, please.

I'd like to begin by giving you some background on my education, and work experience. I graduated from Auburn University in 1997, and have over 10 years experience in environmental consulting. With focus on environmental site assessments, contamination assessment, remediation, as well as NEPA.

Since 2006, I've worked for Southern Nuclear on the Vogtle 3 & 4 project ESP, the COL, and various activities related to the new units. These activities include the ESP and COL revisions and RAIs, as well as manage the geo environmental assessment, which included identifying areas of concerns that need to be addressed prior to initiating the construction activities. These activities include removal of a landfill, various other demolition activities. The reason I point these out is a lot of these activities I'll further discuss in my presentation as part of the site preparation, and preconstruction activities. Slide Three, please.

I'd like to discuss the Vogtle LWA application submittals and revisions. SNC submitted the LWA-1 request with the Early Site Permit

application Rev. 0 in August of 2006. This LWA-1 request included the preconstruction or non-safety-related activities, and will be further discussed in the presentation.

In August of 2007, SNC submitted Rev. 2 of the ESP application, which included an LWA request, which are the safety-related activities, such as engineered backfill, mud mats, and waterproof membranes. In October of 2007, the new rule was final, the new LWA rule, which allows non-safety-related activities, the preconstruction activities, to be conducted without NRC authorization. Therefore, SNC updated the LWA request with Rev. 3 of the ESP in November of 2007 to address the safety-related activities. This request includes the engineered backfill, mud mats, the retaining walls, or the mechanically stabilized earth wall, and the waterproof membrane, as well as lean concrete fill. Slide Four, please.

I would like to give you a brief synopsis on the schedule that we are currently working to. This schedule included on this slide is for Unit 3. And, as you can see, the site preparation activities and preconstruction activities outside of the LWA are currently being conducted. These activities are

expected to continue throughout 2009 for Unit 3, and into 2010 for Unit 4, with one of the primary preconstruction activities being the excavation of the power block. We are looking at initiating the excavation activities in the April-May time frame of this year, with the completion of Unit 3 excavation around November of 2009, with Unit 4 to shortly follow. I point out that the November time frame is, essentially, the same time frame the ESP and LWA is expected to be issued.

With the issuance of the LWA, the following safety-related activities can begin; installing the engineer backfill, the mud mats, MSE wall, waterproof membrane, and lean concrete fill. For Unit 3, these activities are expected to be completed in February of 2011, with Unit 4 to shortly follow. The activities for Units 3 and 4, these are the LWA activities, will be conducted concurrent with the completion of Unit 4 activities, lagging Unit 3 by approximately six to twelve months. I point this out to clarify that the plan is to complete LWA activities -- the plan is not to complete the LWA activities for Unit 3, then initiate the LWA activities for Unit 4. Slide Five, please.

SNC is currently conducting -- is planning

to conduct in the near future various site preparation and preconstruction activities that are outside the LWA. These activities are non-safety-related, and include, but not necessarily limited to, road and rail construction, utility installation, such as electrical, potable water, sanitary sewer, temporary construction facilities, clearing and grubbing activities, installing environmental controls, such as erosion control measures.

As mentioned in the schedule, the primary preconstruction activity is the power block excavation, which is expected to remove approximately 4 million cubic yards of material. That's the total for two units. Again, these activity is expected to begin in the April-May time frame, and be complete in November of 2009 for Unit 3, with Unit 4 to shortly follow.

As you see from the images on this slide, the first image to your left is erosion control installation activities. The image in the middle is the clearing and grubbing activities for -- this is actually for a sedimentation pond that we're constructing. And the last image on the slide to your right is the temporary, or the initial construction offices, as part of preconstruction activities. Slide

Six, please.

These are illustrations depicting the extent of the excavation, the general site arrangement for Units 3 and 4 excavation areas. The image on your left shows the details of the excavation with the outermost extent, this would be the top of grade which is at elevation 220, ranging from approximately 1,200 feet by 700 feet. The excavation area will slope on a two-to-one grade, to the bottom base of the excavation that's approximately 800 feet by 300 feet. The image on the right is showing an aerial view of the site with the footprint of 3 and 4 excavation depicted. This is a good illustration showing the relationship between Units 1 and 2. Units 1 and 2 are just in the picture on the right side. Next slide, please.

I would like to move into the activities covered in the LWA. As indicated in the ESP application, and the final Environmental Impact Statement, SNC proposes to conduct various non-safety-related activities. These are the preconstruction activities previously discussed, and various safety-related activities prior to the receipt of the COL.

The safety-related activities are covered by the LWA, and separated into two components, the physical activities, and the programs to support

safety-related activities. The physical activities covered include the engineered backfill, MSE wall, mud mats, waterproof membrane, and lean concrete fill. The programs necessary to support LWA are the fitness for duty and the quality assurance with problem identification and resolution programs being part of the QA program. These programs are to be in place prior to initiating the LWA activities. Slide Eight, please.

This is an illustration showing a profile view of the excavation area. This is showing, if you look at the top excavation, this is a profile view of the east-west profile, let's say you're looking north. As you see, we've got the engineer -- the Category One backfill, Category Two backfill, as well as retaining walls, and the mud mats. The yellow on the slide is the in situ material, the undisturbed material. The gray across the bottom is the Blue Bluff Marl, which is our bearing unit. The image on the bottom is just a north-south profile view of the same excavation area. Slide Eight, please.

JUDGE BOLLWERK: I think we're on Nine, actually.

MR. FULTON: Nine, sorry. This is another illustration of the excavation as related to the

nuclear island. This is showing the excavation area, which is stamped with the two-to-one slopes, engineer backfill, as related to the nuclear island. As you see from this slide, it is not to scale, but it does have kind of a depth bar on the right side. As you can see, the nuclear island is approximately 40 feet below grade. The grade elevation is at approximately 220 feet mean sea level, with the bottom of the nuclear island at approximately 180 feet. The bottom of the excavation will go down to 130 feet mean sea level. And I'll point out that the groundwater in the water table aquifer is at approximately 160 feet mean sea level. Slide Ten, please.

The image in the upper right is just another profile view depicting the backfill, the mud mats, waterproof membrane, and MSE wall with the reinforcing tiebacks. The image in the lower left shows what the MSE wall would look at the issuance of the COL. Slide Eleven, please.

I would like to spend some time talking about the Environmental Impact Evaluation efforts during the ESP Environmental Report preparation. The ESP ER evaluated the impacts to the environment of the construction and operation of the Vogtle Units 3 and 4. Therefore, the environmental impacts associated

with LWA activities were cumulatively covered in the impact evaluation for construction. The impacts during the LWA were determined to be consistent with the impacts during construction, but for shorter duration. Using the cumulative approach for the environmental analysis, where the impacts associated with the LWA and construction are analyzed as a whole, bounds this analysis, as you would not expect any given impact associated with LWA to be greater, as related to the small, moderate, and large determination.

The impacts evaluated consists of the land use, air quality, water quality, ecology, socio economics, environmental justice, historical and cultural resources, and radiological, and non-radiological health impacts. Consistent with the ESP ER impact evaluation, the NRC evaluated the impacts associated with construction and operation of the new units. The impact evaluation for construction also used the cumulative approach that evaluated the impacts of construction, and preconstruction, which included the LWA. The NRC also determined that the impacts associated with the LWA will be similar to the impacts during construction, and range from small to moderate.

In evaluating the environmental impacts, SNC also identified necessary environmental controls that need to be in place to minimize and mitigate the identified impacts. These controls consist of regulatory permitting, groundwater monitoring, installing storm water controls, such as settling basin, dam, site drainage, and so on, conducting dust suppression, and developing spill containment controls. Slide Twelve, please.

I would like to talk about the prerequisites the NRC discussed in the final Environmental Impact Statement. These prerequisites are practical matters to be performed prior to initiating the LWA activities, and include Prerequisite Number One, identified by the NRC as documentation of existing site conditions within the Vogtle 3 and 4 site. This is an ongoing process, as we conduct various environmental impact evaluations for the activities going on within 3 and 4, as well as doing engineer reviews and photograph documentation.

The Prerequisite Number Two is the coordination of agreements between site co-owners and Southern. I'll point out that there is no specific agreement solely for LWA. We do have agreements in place with the co-owners to accomplish the licensing,

as well as the construction of the new units, which would include the LWA activities.

Prerequisite Number Three, coordination of movement of the existing Vogtle site protected area boundary, or the PA boundary. As you saw from the earlier slide, the 3 and 4 excavation is approximately 1,700 feet from Units 1 and 2. It's well outside the protected area for 1 and 2, and there is no need to adjust the boundary to support the LWA activities.

Prerequisite Number Four, which is the movement, demolition, and ownership transfer of existing Vogtle site buildings and structures within the 3 and 4 site. This, again, is an ongoing process. We have conducted various demo activities. We've relocated various facilities that were for 1 and 2, and we'll continue to do that throughout this project.

I've combined the last two prerequisites, which is permitting for preconstruction, and LWA activities. We're working closely with the local and state agencies on all permitting issues, and have submitted various storm water permits, demo notification, asbestos notifications, and we continue to do that as additional activities move forward.

JUDGE BOLLWERK: Just a quick question. How does the permitting compare with what you need for

preconstruction, as opposed to what you need for the actual LWA?

MR. FULTON: The permitting is virtually the same. There is no difference in a permitting for storm water -- if we're doing storm water activities in the preconstruction area, say we're installing a construction road, we'll go through the same process to get that storm water permit, as we would for the excavation of the backfill. It's virtually -- it's an area of disturbance type permit. There's no difference in, as far as the state is concerned, or the local officials, in preconstruction or LWA, or construction, for that matter.

JUDGE BOLLWERK: Do you apply for only one permit, or do you apply for a permit to deal simply with preconstruction activities, and then you amend it, or file a new one when you go to the LWA?

MR. FULTON: It depends on the activity. I'll stick with storm water, for example. Those notifications are submitted as we do perform the activity. There's some requirements that you submit them within a time frame. You can't initiate work to outside of that time frame, so if we've identified an area, we need to go and install a settling basin, we submitted that -- some notice of intent for that area.

This helps the EPD, the Georgia Environmental Protection Division manage this. We had several meetings with them, and discussed how to move forward with permitting, and it was decided that if we could -- instead of preparing all these permits, dropping a stack of permits on their desk for them to go through, it would be better as we move forward with the project to request permits. And this would go for all of our activities. As we need the permit in our schedule, we will apply for the permit, make sure they're in place prior to initiating these activities.

JUDGE BOLLWERK: All right. Thank you.

JUDGE JACKSON: You mentioned in your previous slide that you would conduct groundwater monitoring as part of this. Could you expand on that a little bit?

MR. FULTON: Sure. We currently conduct -- in support of the ESP we conduct monthly groundwater monitoring. We have revised that a little bit to go to a quarterly groundwater monitoring. The primary reason we would need to monitor the groundwater for these preconstruction and LWA activities is the excavation and backfill. As you saw from the slide, the bottom of the excavation is approximately elevation 130, with the groundwater at about

approximately elevation 160, so we will conduct dewatering activities to lower that water, and we will conduct groundwater monitoring to determine the extent. We've done our initial modeling, which predicts the extent of dewater impacts, and they were minimal. They did not leave the site, so we will continue to do our groundwater monitoring program just to verify that our dewatering activities are successful, and to understand what the impacts are.

JUDGE JACKSON: Thanks.

MR. FULTON: I'll just quickly point out -

JUDGE TRIKOUROS: Let me interrupt you for one second.

MR. FULTON: Sorry. Go ahead.

JUDGE TRIKOUROS: We were going to question the movement of the protected area, sort of pre-empted the question with your presentation, but I'm still curious why that bullet is even there. Is there some future consideration for moving the protected area?

MR. FULTON: To support LWA there is not. For LWA activities, there is not a need to move the PA. Eventually, I think we will determine if we need to move the PA as part of the operation of the new units once they're constructed. I'm not sure if the

determination has been made that we will have one protected area, or if we'll have a separate protected area per unit.

I'll quickly point out the images across the bottom of the slide. The first image on your left is some of the remediation activities we're conducting. This is a former weapons firing range that we've remediated. The location of this firing range was in the same location as one of our construction roads. The next image is the removal of the landfill. This landfill is located within the footprint of the new units. It's actually located where the new switchyard would go. The third image is just one of our building demolition activities that we are conducting. I'll point out that the majority of our buildings are metal sided and framed, and we are also recycling this material, as necessary.

The last image on the slide is an underground storage tank removal. These are fuel storage tanks that were to support the unit, the construction of Units 1 and 2, and they were in the footprint of 3 and 4. We have since went in and removed those tanks. Slide Thirteen, please.

Now, I would like to discuss the Site Redress Plan. As required by the ESP and requested

LWA, having a Site Redress Plan in place to insure that the site will be returned to an unattended environmentally stable, and aesthetically acceptable condition in the event Vogtle 3 and 4 is not completed. The redress activities will be conducted in accordance with applicable land use requirements and zoning. The LWA activities will take place within the area of excavation at approximately 90 feet below grade. And SNC's preferred method of redress would be burial in place.

Prior to initiating the site redress in the event we didn't complete the new units, the preferred plan, burial in place, will be discussed with the Georgia Environmental Protection Division. The site redress will insure that no significant amount of degradable material, such as temporary construction form work, would remain below grade, but will be removed and disposed of properly at a permitted facility. If the EPD, Georgia Environmental Protection Division, did not approve the burial in place, SNC would demolish and remove the LWA structures in accordance with Georgia requirements.

The final site redress would include regrading the area to conform with the surrounding land surface, and to mitigate erosion from storm water

runoff. Prior to initiating any site redress activities, Southern would evaluate the land area for future alternative uses. If improvements could be made to it that would allow for the area to be used for an alternative industrial use, the site redress efforts will be commensurate with the future uses.

Additionally, during the site redress, similar environmental controls used during preconstruction and LWA will be initiated. These mitigating controls would include, but not necessarily limited to, noise control, erosion control, sedimentation controls, air quality controls, and pollution prevention. Slide Fourteen.

This concludes my presentation on LWA and site redress. Thank you.

JUDGE BOLLWERK: Thank you. Let me see if there's any questions from the Board members. I think we clarified this, but let me just ask you. In terms of Limited Work Authorization or the preconstruction activities, do they have anything at all to do with what's involved relative to the potential barging area?

MR. FULTON: No, they do not. The LWA activities are strictly for the excavation. The -- I don't know that I could answer the barging question,

as far as preconstruction, but to my understanding, there will be no need to barge any equipment or anything as part of the preconstruction activities.

JUDGE BOLLWERK: And is there any work that you would be doing in that area, in terms of down by the river relative to the LWA, or the -

MR. FULTON: Yes, installing the barge slip down along the river.

JUDGE BOLLWERK: And that's part of the LWA.

MR. FULTON: No, that is not part of the LWA. That would be outside of the LWA. That's correct. All LWA activities are within the power block excavation.

JUDGE BOLLWERK: All right. Okay. Any other questions? All right. Then let's -- thank you, sir. We'll turn to the Staff then, and hear from you all, and then we'll see if there's any additional questions that come up. Thank you. This is Exhibit NRC63, I think we're going to.

DR. SACKSCHEWSKY: We can go ahead and move to the next slide, please. As I mentioned before, I'm Mike Sackschewsky, and I'll be discussing the environmental review that we performed for the LWA. I am with Pacific Northwest National Laboratory,

and I am the Laboratory Team Leader that was in -- I led the team that prepared the EIS in conjunction with the NRC. Biologist by training, but I've been supporting NRC on environmental reviews for quite a while now. Go on to the next slide.

Many of my slides are actually fairly duplicative of what Mr. Fulton just provided, so I will -- where they're saying much the same thing, I'll just try to add a couple of points. Mr. Fulton pointed out that there were several different steps in the LWA request process. The point I wanted to make here just for clarification, is that the draft Environmental Impact Statement was prepared assuming the former LWA-1 type activities as the LWA. Changes to the rules came in shortly after the draft Environmental Impact Statement was issued, and, thus, the final was actually based on a different set of proposed activities than the draft was. Go to Slide Four, please.

In the final Environmental Impact Statement, we assumed, and Southern had actually requested that all activities that are allowed under 10 CFR 50.10(D), they requested all of those, and that includes this whole list, including that last item. Let's move on to number five, Slide Five.

Subsequent to issuing of the FEIS, Southern requested to withdraw the installation of rebar from their list of LWA activities. That had no effect on our environmental review, just wanted to point out that the list that was covered in the FEIS is now slightly different from the current LWA request.

JUDGE BOLLWERK: So, essentially, everything that was on -- all the bullets on Slide Four are in effect, but for the last one then.

DR. SACKSCHEWSKY: But for the last one. Correct.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: Slide Six, please. Mr. Fulton just discussed the prerequisites that were discussed in the FEIS. I wanted to add on this that these are not items that are NRC required items. They're not something that Southern would have to prove before they got their ESP, or their LWA. But they're items that would be expected to be done before they could do that. And similar lists of prerequisite activities were included in both the Clinton and North Anna ESP FEISs.

JUDGE TRIKOUROS: Could you explain that further? Are these prerequisites, these are not

required by the NRC?

DR. SACKSCHEWSKY: No, they are not.

JUDGE TRIKOUROS: So when you said "expected to be", what did that mean?

DR. SACKSCHEWSKY: It's not something that the Staff requires documentation for, or any sort of proof. And, as I said, they're not required for the actual LWA to be issued, but they are items that one would assume would be taken care of. For instance, having permission from your co-owners to actually do the work would be expected. Does that clarify it?

JUDGE TRIKOUROS: Almost. If these are not done -- I guess what you're telling me is there's no safety implications, or no -

DR. SACKSCHEWSKY: No, there would be no safety implications to these.

JUDGE BOLLWERK: There might be legal implications, I suppose, looking at what's on this list.

DR. SACKSCHEWSKY: Certainly. Certainly.

JUDGE TRIKOUROS: All right. Thank you.

DR. SACKSCHEWSKY: And then on Slide Seven, which is the last two items of the prerequisite list. In this case, I just wanted to state that these are permits, and licenses, and whatnot that are not

issued by the NRC. They're all issued by other state or federal agencies, and would be issued, and compliance would be monitored by the other agencies. And if there are any conditions on those permits, it would be placed and enforced by the other agencies, and not by the Staff.

JUDGE BOLLWERK: So, if we're understanding you correctly then, on Slides Six and Seven, there's a series of five bullets. These are all things that Southern, as a prudent manager of the LWA project, would need to have done before it put the first shovel into the ground, as it were. But these are not things, necessarily -- the Staff warns them that they need these things, but these aren't things that you necessarily monitor or audit in any way.

DR. SACKSCHEWSKY: That is correct.

JUDGE BOLLWERK: I know there have been LWAs in the past, obviously, none recently. Is this sort of -- this process that we're talking about, is this one that's pre-existing, that the agency has used before?

DR. SACKSCHEWSKY: Yes. There is an identical, almost identical list in the Clinton ESP FEIS, and a very similar type list in the North Anna ESP FEIS.

JUDGE BOLLWERK: I'll be frank, I don't remember. Did they apply for LWAs as part of their -

DR. SACKSCHEWSKY: Yes, both of those had LWA.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: Okay. Slide Eight, please. I guess as we all understand, pursuant to the October 2007 rule, there's many activities that the applicants are now allowed to do on site without any specific authorization from the NRC. These are all termed preconstruction activities now. Some of the -- Mr. Fulton gave a schedule for many of those. I'm not sure if that included all of the potential preconstruction activities, or just the ones leading up to the LWA. Some of those activities would -- a subset of the preconstruction activities would, by necessity, have to be performed prior to the LWA. Others could be performed in parallel or after the LWA activities. And the obvious example of that is the clearing and excavating for that foundation. The clearing and digging the hole are preconstruction, and you'd have to do that before you could place cement in the bottom of the hole. Slide Nine.

Previously seen a list of the preconstruction activities, and it's a broad list,

clearing, grading, setting up your batch plants, your support facilities, rearranging on-site roads and rail spurs, getting your borrow areas in place. Slide Ten, please. Constructing large objects, like the cooling towers and the intake structure, that's all part of preconstruction.

JUDGE BOLLWERK: Let's go back one second with that barge slip modification. In your view, what does that -- why is that bullet in there?

DR. SACKSCHEWSKY: Southern proposed some specific modifications of their existing barge slip to facilitate barge transport of materials, and that's all right at the shore of the site. I think they needed to deepen it, and lay a gravel foundation, if I remember correctly.

JUDGE BOLLWERK: All right. Let me go back to Mr. Fulton. How does that relate to what you told us previously?

MR. FULTON: I'll just point out that it is correct, we have plans to build a barge slip, but that is not to support the LWA activities.

JUDGE BOLLWERK: All right. So that's just -- you're going to make the modifications to the barge slip looking toward generally how you're going to use the barge slip relative to the construction of

the facility.

MR. FULTON: That's correct. Many of these preconstruction activities are primarily to support the construction of the new units, not necessarily solely for LWA.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: The next two slides were just a couple of maps that I won't spend a lot of time on. I just wanted to point out all of the LWA activities would be occurring within this area to the left of the existing power block area. It's called the new power block area here, and actually just the facility footprints within there. That is where all of the LWA activities would occur. Pretty much, everything else that's labeled, and shown, and mapped out on this figure would all be in the preconstruction realm of disturbances.

And then the next slide, Slide Twelve, was just more of an aerial photo showing the same thing. Again, LWA is occurring in this area right here, now kind of to the lower left of the existing power block. And all of the rest of the activities would be occurring in these other forested areas, and cleared areas.

JUDGE BOLLWERK: Can we go back to Slide

Ten one second, before we get too far ahead of it? Let me just ask a couple of other -- bring it up here. It mentions cooling towers. In relation to preconstruction activity, what does that mean?

DR. SACKSCHEWSKY: Construction of cooling towers is not considered construction. That is preconstruction.

JUDGE BOLLWERK: So they could build cooling towers as part of their preconstruction activities then.

DR. SACKSCHEWSKY: Correct.

JUDGE BOLLWERK: All right. Mr. Fulton, do you plan to build any cooling towers as part of your preconstruction activities?

MR. FULTON: The cooling towers will be built as part of the -- I guess you'd have to say yes, as part of the preconstruction activities, starting with the foundation for the cooling tower. Yes, we'll start with the foundation of the cooling towers. I think we have a schedule that shows us doing that in the 2010 time frame.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: But I might point out that the rules -- the term "preconstruction" is somewhat of an artifact of the way the rule was

written. It doesn't mean that that activity is done before construction. It's non-safety-related construction, is what it really should be entitled. So building a cooling tower could be done well after the start of safety-related construction, but it's still classified as preconstruction.

JUDGE BOLLWERK: But, basically, as I understand what you're saying, is in terms of when they decide to put up their cooling towers, it's not relative to the NRC construction permit, or the early site permit. It's basically a preconstruction activity.

DR. SACKSCHEWSKY: Right.

JUDGE BOLLWERK: So the timing is really up to them.

DR. SACKSCHEWSKY: Right.

JUDGE BOLLWERK: All right. And what about the electrical switch yard?

DR. SACKSCHEWSKY: Same thing. Presumably, they would want to finish it before they started operating their reactor, but that's not related to the NRC safety-related construction schedule.

JUDGE BOLLWERK: So, again, both of those are -- the timing of building electrical switch yard

is up to Southern then.

DR. SACKSCHEWSKY: Correct.

JUDGE BOLLWERK: All right. Do either of these relative to the cooling towers or the electrical switch yard, do they have anything to do in terms of the state and local permits that you have to get? Do you have any particular permits you need for those?

MR. FULTON: We would need to get the storm water permits, as well as for the cooling towers due to the height. We will have to submit a notice that we will be constructing cooling towers to the Federal Aviation Administration.

JUDGE BOLLWERK: Okay.

MR. FULTON: It's not necessarily a permit, but it's a notice.

JUDGE BOLLWERK: All right. Any other questions on that? All right. Then let's move forward.

JUDGE JACKSON: Yes. Fire detection and protection equipment seems like an odd thing to have on that list. Can someone expand on that?

DR. SACKSCHEWSKY: I believe it is on the list of items that are excluded from construction. Obviously, if it's safety-related fire protection things, that wouldn't be the case. But I think in

terms of the water lines, and that sort of thing.

MR. FULTON: May I add to that?

JUDGE JACKSON: Yes.

MR. FULTON: I would interpret the fire detection as being part of the yard fire system. This would be installed. It's not safety-related. Our fire protection would be primarily for the outer laying facilities.

JUDGE JACKSON: Yes, I would assume that would include even the feed lines and whatever for the safety-related fire protection, would be outside of this preconstruction.

MR. FULTON: I believe so.

JUDGE BOLLWERK: Let me, before we move off this, since we've asked about the others, we might as well ask about the other bullets. In terms of the intake and discharge structures and pipelines, basically, that's what goes into the river?

DR. SACKSCHEWSKY: Correct.

JUDGE BOLLWERK: So, again, those are considered preconstruction activities.

DR. SACKSCHEWSKY: That is right.

JUDGE BOLLWERK: And the transmission lines, the same way. Again, for back to Mr. Fulton, any permits that you have to get for either of those?

MR. FULTON: For the intake and discharge structure we would need to secure 404 permits with the Corps of Engineers.

JUDGE BOLLWERK: And in terms of the transmission line?

MR. FULTON: Transmission lines, yes. You would -- the typical permit things, such as storm water as you were clearing land, any additional like land disturbance permits would be required.

JUDGE BOLLWERK: Are the existing transmission lines coming into the plant going to suffice, or you're going to have to add additional lines?

MR. FULTON: I don't know that I can answer that question.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: Your Honor, Southern has indicated in their environmental report that they would need one additional 500kV line.

JUDGE BOLLWERK: All right. Thank you. All right. I think you were on -- there's nothing else on that slide from any of the Judges. I think you were about to move to Slide Thirteen. I think we did do Twelve. Twelve was the aerial photograph.

DR. SACKSCHEWSKY: Yes. We're on Slide

Thirteen. The Staff also evaluated the cumulative impacts of preconstruction, LWA activities, and construction. We found that the LWA activities were hard to separate in terms of defining the actual impacts. In many resource areas, the environmental impact of the actual construction, compared to the preconstruction, is pretty minimal, especially in areas such as land use, and ecology, historic and culture resources, almost the entire construction impacts for those is in the preconstruction realm, rather than in the LWA or actual construction.

In a couple of resource areas, such as socio economics, transportation, and non-radiological health, you can assign -- you can separate the impact somewhat between the preconstruction activities and the construction. And the construction in that case would include the LWA.

JUDGE BOLLWERK: But, again, I guess as you told us before, these preconstruction activities are authorized under the NRC rule, revision to the rules.

DR. SACKSCHEWSKY: That would be correct, Your Honor.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: Slide Fourteen, please.

Staff found that the environmental impacts of the LWA activities would be bounded by the overall cumulative construction impacts. Most of those impacts we found to be small, except in the case of cultural resources, which was moderate. And, as I said, that was entirely due to preconstruction-related activities. And several socio economic subareas, demography and taxes, and perhaps in transportation were also moderate. And the LWA portion of those moderate impacts would be relatively small compared to the rest of the construction activities. Slide Fifteen, please.

Southern submitted a Site Redress Plan, and defined the objective that it would be to insure that the site is returned to an environmentally stable, and aesthetically acceptable condition in the case that the Unit 3 and 4 site is not fully developed for nuclear power generation. This redress plan is addressed strictly at the LWA activities. It does not cover the preconstruction activities. And the redress would reflect applicable land use, and zoning requirements.

JUDGE TRIKOUROS: Just a question. Was the decision to not include rebar associated with site redress problems? This is, I guess, for SNC.

MR. FULTON: No, it was not. The decision

to remove the rebar, from my understanding, is issues with the DCD. And I'm not familiar with what -- exactly what those issues were.

JUDGE TRIKOUROS: Rev. 17 of the DCD, you're talking about?

MR. FULTON: I do not believe it was Rev. 17. No.

MR. ARAGUAS: This is Christian Araguas with the Staff. The reason for the removal of rebar was guidance provided by the Staff. And the reason for that was the rebar necessarily depends on the base mat design, and the Staff felt like at this point, we were not able to approve the base mat design on the schedule to support the issuance of the LWA. And that's because of the changes from Rev. 15 to Rev. 16.

JUDGE TRIKOUROS: And could you elaborate on what those changes were that we're talking about?

MR. ARAGUAS: I can't do that, but when we cover the LWA presentation from the safety side, we have somebody that can address that.

DR. SACKSCHEWSKY: Okay. Slide Sixteen, please. Mr. Fulton described the preferred redress activity, which was basically to obtain a permit to close the site with permission to leave the inert materials in place, so remove the degradable material,

fill in the hole, regrade to the surrounding landscape, and revegetate. In the case that that permit were not obtained, then the inert materials would also be removed, and transported for disposal elsewhere. And unless an acceptable alternative for those particular structures are found, then the full redress implementation would not be required, simply enough to conform with the alternative use.

JUDGE TRIKOUROS: Who makes the decision if an alternative use is acceptable? Is that something that the NRC is involved in, or is that other agencies, or who makes that judgment?

DR. SACKSCHEWSKY: I believe it's an applicant decision, but I am not confident of that.

JUDGE TRIKOUROS: So, the applicant could decide not to do these redress activities?

DR. SACKSCHEWSKY: No, the applicant could determine that an acceptable alternative use was found.

JUDGE TRIKOUROS: But the applicant would make the determination of what's acceptable or not?

DR. SACKSCHEWSKY: I'm not sure the proper answer of that.

JUDGE BOLLWERK: So, in other words, if the applicant decided they're not going to fill in the

hole, they're going to make it into a swimming pool, I mean, is that what we're talking about here? Large swimming pool, I admit, but -

DR. SACKSCHEWSKY: Large swimming pool, large pool in the bottom of a big hole. I don't know if that would be an acceptable alternative or not.

JUDGE BOLLWERK: Mr. Fulton, can you -

DR. SACKSCHEWSKY: The State might have some statement in terms of that, as well.

JUDGE BOLLWERK: They might. Do you have anything you want to add in this respect?

MR. FULTON: I would just add that, from my understanding, it would be up to the applicant to determine the alternative use. Now, whatever alternative use this would be, we would follow any of the applicable federal, state, and local requirements for that use.

JUDGE BOLLWERK: All right.

DR. SACKSCHEWSKY: Slide Seventeen, please. The performance of the redress activities, if they are implemented would, in and of themselves, have some environmental impacts. These would be very similar to those that would result from the preconstruction-type activities, or the LWA supported activities. And Southern in their redress plan

described a set of measures and controls that would be implemented to mitigate those impacts, specifically in the areas of noise, and traffic, erosion, air quality, and potential releases of pollutants. And these are pretty much the same measures and controls that were proposed for the actual construction, and preconstruction activities.

JUDGE TRIKOUROS: So, the same basic question, who monitors that? Is that an NRC monitoring task?

DR. SACKSCHEWSKY: Since this would be redressing the LWA activities, I believe that NRC would have a role in that. Although, certainly, any permits involved would be enforced by the permitting agencies.

JUDGE BOLLWERK: Let me ask a broader question. In terms of the LWA, and any activities under the LWA, are they subject to NRC inspection?

DR. SACKSCHEWSKY: Yes, they would be.

JUDGE BOLLWERK: And, so, when those activities start, in theory, the NRC inspection process would be ongoing at that point.

DR. SACKSCHEWSKY: Correct.

JUDGE BOLLWERK: And what about preconstruction activities of any kind, in terms of

NRC inspection?

DR. SACKSCHEWSKY: I don't know if there is a single answer to that, or if NRC has a role in all of that.

JUDGE BOLLWERK: Anyone else on the panel know?

MR. ARAGUAS: I'm not certain either, but I would say that it doesn't require NRC approval. I'm not sure that we would have a role in going out and inspecting those activities.

JUDGE BOLLWERK: All right. And in terms of the LWA, would that be something that the resident inspector would be responsible for, the regional -

MR. ARAGUAS: The resident inspector, as well as the regional base inspectors.

JUDGE TRIKOUROS: The intake and discharge, I guess I'm more interested in the discharge than the intake. That inclusion as a preconstruction is something new. Right? Originally, it was part of the LWA?

DR. SACKSCHEWSKY: Under the former rules, that would have been a LWA kind of activity.

JUDGE BOLLWERK: Just so I understand it. What is the -- I mean, the resident inspectors that are currently there, they're for Vogtle Units 1 and 2.

How do their duties change relative to 3 and 4? To the degree you can answer that question, post 3 and 4.

MR. ARAGUAS: I'd have to get back to you on that.

JUDGE TRIKOUROS: I just want to pursue this just for another minute. There were no -- in terms of the analyses that were done for thermal plume, that sort of thing, there were certain angles of -- assumptions regarding angles of pipe, and, basically, the structure of the discharge was evaluated for -- the thermal plume was evaluated for that structure. You don't look at that at all to make sure that it's in accordance with the environmental analyses that were done?

DR. SACKSCHEWSKY: Not that I am aware of.

JUDGE TRIKOUROS: Okay.

JUDGE BOLLWERK: At no point do you look at them? I guess, that's -

DR. SACKSCHEWSKY: It's possible that this is an issue that wasn't contemplated by the writers of the rule at the time. I'm not aware of any point where that would be inspected.

JUDGE BOLLWERK: All right. Let's see. Any other questions? I think we were on Slide Seventeen.

DR. SACKSCHEWSKY: Yes, I believe we're ready to move to Eighteen. I just have a couple of concluding slides here, a quick overview of the analysis. We found that the activities requested, the LWA activities requested by Southern are all, in fact, allowed under 10 CFR 50.10(d). The redress activities would adequately redress those LWA impacts, and the implementation of that redress plan would not, in itself, have adverse environmental impacts. Slide Nineteen, please.

And then to just summary and conclusion, we looked at all the impacts in a cumulative sense, found that the LWA environmental impacts by themselves are relatively minor, and are bounded by the cumulative preconstruction and construction impacts. And that the redress plan is fairly simple, and the proposed actions would adequately redress the LWA impacts.

JUDGE BOLLWERK: Given the sort of preconstruction activities that we're talking about in terms of the intake and discharge structures, cooling towers, the switch yard, transmission lines, I take it all those are covered under the Site Redress Plan. So if, for whatever reason, those were constructed, and then it was -- they're not.

DR. SACKSCHEWSKY: No, they would not. The redress plan is solely aimed at the LWA activities, which is those foundation materials in the bottom of the hole.

JUDGE BOLLWERK: All right. And, so, what would cover those sorts of things in the preconstruction activities in terms of any redress?

DR. SACKSCHEWSKY: The NRC would have no role in that, in redress of those activities.

JUDGE BOLLWERK: All right. Anything that Southern could add to that in terms of who would be responsible for seeing, for instance, if the cooling tower was put up, that it was taken down appropriately?

MR. FULTON: My understanding, that would be the responsibility of Southern to make the determination on whether they would take it down or not, in the event the new unit was not completed.

JUDGE BOLLWERK: And the same thing would go to the other things on this list, the switch yard, transmission lines, discharge and intake structures?

MR. FULTON: That's correct. Site redress is -

JUDGE BOLLWERK: Okay. Thank you. Appreciate your clarifying that.

We had at least, I guess, one question about the inspection process. I don't know if you can -- that's something you can clarify over the lunch hour. Is that possible, or not? I think the question was what's the relationship of the current resident inspectors relative to LWA activities, given they're there for Vogtle 1 and 2. What is their responsibility relative to proposed 3 and 4, if an LWA were authorized, and how would they interact then with the regional base inspectors?

MR. MOULDING: We can try and see if we can find information about that over the lunch break.

JUDGE BOLLWERK: All right. Any other questions at this point about the LWA process? All right. Why don't we, subject to potentially getting those, the answers to those questions, we'll bring this panel back right after lunch, and see if there's anything further we can put on the record in that regard.

We are now at about five after twelve. Why don't we have -- why don't we take a lunch break then until 1:30. We'll come back at that point, see if there's any other information this panel might be able to provide us, with the anticipation that we would move on to Site Emergency Plan shortly

thereafter. And I think there is some possibility that we may wish to move some of the Presentations 8, 9, 10, and 11 forward, if that's possible. So you all would need to assess that, and let us know what you think about that possibility.

I don't know that we're going to have enough time to do seismic this afternoon, and I would like to keep that as a whole, if we can, probably tomorrow morning. So, if there may be some time, we could move one of those forward. It may save us time on the back end tomorrow afternoon. All right?

Thank you, gentlemen. We'll see you after lunch.

(Whereupon, the proceedings went off the record at 12:06 p.m., and went back on the record at 1:30 p.m.)

AFTERNOON SESSION

1:30 P.M.

JUDGE BOLLWERK: All right, let's go back on the record, please.

We're back after a lunch break. We're dealing with the question or the presentations on Limited Work Authorizations and the redress plan. We were hearing from Mr. Fulton on behalf of Southern and a panel from the NRC staff.

Let me turn to the staff and see -- we had asked you for some -- if it was possible to gather some addition information over the break about the inspection-related process relative to Limited Work Authorizations and see what else you were able to find out.

MR. ARAGUAS: Yes, we were able to track that answer down and to correct my earlier statement, the resident inspectors that are there for Units 1 and 2 are primarily focused on Units 1 and 2. The only time where they might get involved is if there's any interface for the LWA work that's being done that could affect Units 1 and 2. So the construction inspection program itself is headed out of Region 2 and so it would be focused with the regional base inspectors that would come out.

JUDGE BOLLWERK: All right. And then I think we had an additional question relative to the LWA activities, I'm sorry, pre-construction activities, sorry, related to the intake and discharge structures in pipes and I guess there was -- Judge Trikouros expressed some concern about the fact that both potentially the way they were aligned and the way they were set up would have some impact relative to the environmental side given that there were plumes dealing with release of water, thermal impacts that might have some impact on the environmental side. And I just want to see if there was any inspection work or any NRC review of those pipes notwithstanding or discharge structures and intake structures, notwithstanding the fact that they're preconstruction activities.

DR. SACKSCHEWSKY: Sir, to my knowledge, there's still no staff review of that. However, those structures that you're concerned about would be permitted structures that would be subject to, in this case, State of Georgia permits. And in assuring compliance with those, those agencies would presumably examine the structures or get some sort of certification from Southern.

JUDGE BOLLWERK: From the Board, any

questions? You're looking pensive.

JUDGE TRIKOUROS: Yes, I was just thinking if that would include verifying the angles and the depths, that sort of thing. You don't know the answer to that?

DR. SACKSCHEWSKY: No, we don't, Your Honor.

JUDGE TRIKOUROS: All right, thank you very much.

JUDGE BOLLWERK: Anything further, Judge Jackson?

All right, anything further, Judge Trikouros, on any of the items?

JUDGE TRIKOUROS: No.

JUDGE BOLLWERK: All right, thank you very much, gentlemen, all of you for your testimony. We appreciate the information provided to us and your service to the Board. Thank you very much.

All right, at this point, I think we're ready then to move along to the next presentation. This one will deal with the Site Emergency Plan which is part of the Early Site Permit. We have, I believe, on this one the lead again is with Southern and there's a staff panel with two witnesses. So if everyone would like to come up and take a seat and

I'll turn to counsel for Southern and let him introduce his witness.

MR. BLANTON: Your Honor, for Southern Nuclear, we have Mr. Ted Amundson.

JUDGE BOLLWERK: All right.

MR. BLANTON: Who has not been sworn, I don't believe.

JUDGE BOLLWERK: I don't think he has. I agree.

Let's get you sworn here, so if you would, sir, raise your right hand and respond to the question orally. Do you swear or affirm that the testimony you will give in this proceeding is the truth, the whole truth, and nothing but the truth?

MR. AMUNDSON: I do.

JUDGE BOLLWERK: I think we have several exhibits here.

MR. BLANTON: We do, Your Honor. SNCR00083 is the Site Emergency Plan presentation which we asked to be marked for identification.

JUDGE BOLLWERK: All right, let the record reflect that SNCR00083, as identified by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNCR00083-MA-BD01 for

identification.)

MR. BLANTON: SNCR00084 is Mr. Amundson's CV.

JUDGE BOLLWERK: The record should reflect that Exhibit SNC000084, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000084-MA-BD01 for identification.)

MR. BLANTON: SNC000085 is Part 5 of the ESP application, the emergency plan.

JUDGE BOLLWERK: The record should reflect that SNC000085, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000085-MA-BD01 for identification.)

MR. BLANTON: SNC000086 is a white paper entitled "Technical Support Center White Paper."

JUDGE BOLLWERK: The record should reflect that SNC000086, as identified by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000086-MA-BD01 for identification.)

MR. BLANTON: SNC000087 is a document entitled "Evacuation Time Estimates for the Vogtle Electric Generating Plant", dated April 2006.

JUDGE BOLLWERK: And the record should reflect that SNC000088, as identified by counsel is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000087-MA-BD01 for identification.)

MR. BLANTON: SNC000088 --

JUDGE BOLLWERK: Did I just do 88? Did I get ahead of you? That was 87 just before, wasn't it?

MR. BLANTON: That was 87, I think.

JUDGE BOLLWERK: That was my fault. I marked it before I listened to you. Let's go back. The record should reflect that SNC000087 as identified by counsel is marked for identification. I apologize.

MR. BLANTON: And SNC000088 is Chapter 13 of the SSAR for the Vogtle ESP entitled "Conduct of Operations."

JUDGE BOLLWERK: The record should reflect that SNC000088, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000088-MA-BD01 for

identification.)

MR. BLANTON: SNC000089 is a site map.

JUDGE BOLLWERK: The record should reflect that SNC000089, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000089-MA-BD01 for identification.)

MR. BLANTON: And SNC000090 is a December 23, 2004 SECY 04-0236 relating to the Common Emergency Operations Facility for Southern Nuclear's nuclear plants.

JUDGE BOLLWERK: And the record should reflect that Exhibit SNC000090, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit SNC000090-MA-BD01 for identification.)

MR. BLANTON: We'd like to admit those exhibits at this time.

JUDGE BOLLWERK: Any objections? Hearing none, then SNC Exhibits SNCR00083, SNC000084, 85, 86, 87, 88, 89, and 90 are admitted into evidence.)

(The documents, having been marked previously for identification as Exhibits SNCR00083-MA-

BD01, SNC000084-MA-BD01 through SNC000090-MA-BD01, were received in evidence.)

JUDGE BOLLWERK: All right, at this point, I think we can turn then to the staff witnesses.

MR. MARTIN: Thank you, Your Honor. I'd like to introduce on your left Bruce Musico for NRC staff and sitting next to him is Christian Araguas.

JUDGE BOLLWERK: All right. Mr. Musico, I think we need to swear you in.

Sir, you obviously remain under oath, having been previously sworn. Could you raise your right hand, please? And again, I need an affirmative answer, I need an oral answer into the mic with respect to the question. Do you, sir, swear or affirm that the testimony that you will give in this proceeding is the truth, the whole truth, and nothing but the truth.

MR. MUSICO: I do.

JUDGE BOLLWERK: Thank you, sir.

MR. MARTIN: We have two exhibits for this presentation. First, we have NRC000064 which is Staff Presentation 6.

JUDGE BOLLWERK: The record should reflect that NRC000064 is identified for the record.

(Whereupon, the above-referred to document was marked

as Exhibit NRC000064-MA-BD01 for identification.)

MR. MARTIN: And then we have NRC000080 which is the CV for Mr. Musico.

JUDGE BOLLWERK: And the record should reflect that Exhibit NRC000080, as described by counsel, is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit NRC000080-MA-BD01 for identification.)

MR. MARTIN: I ask to have these admitted as evidence.

JUDGE BOLLWERK: Any objections? Hearing none, the NRC Exhibits NRC000064 and NRC000080 are admitted into evidence.

(The documents, having been marked previously for identification as Exhibits NRC000064-MA-BD01 and NRC000080-MA-BD01 were received in evidence.)

JUDGE BOLLWERK: And at this point I believe we are ready, if counsel has nothing else for the presentations by the witnesses, we'll turn to you, sir, then, for Southern.

Check, there's a little switch on the top, make sure that it's up. There you go.

MR. AMUNDSON: There we go. Can we get the presentation called up?

JUDGE BOLLWERK: This would be Exhibit SNCR00083.

MR. AMUNDSON: Thank you. Good afternoon. I'm Ted Amundson and I will be presenting an overview of Southern Nuclear's Early Site Permit Emergency Plan for the Vogtle Electric Generating Plant.

I will review the regulatory basis for the emergency plan and the overall methodology used to develop the emergency plan. In addition, the overview will address key elements of the emergency plan including provisions for communication between control rooms. But before I begin, let me tell you a little bit about myself.

Next slide, please.

I have over 32 years of experience in the commercial nuclear industry, serving in a variety of roles, including system engineering and management positions in training, quality assurance, engineering and business support.

While in the business support area, one of the functional areas that I was responsible for included emergency preparedness. While serving in various positions during my career I was active in

emergency preparedness serving as a drill or an exercise controller and evaluator, a scenario developer, and I was qualified as an emergency director and emergency manager.

In addition to the above, I was licensed as a Senior Reactor Operator and was a Shift Technical Advisor.

I hold a Bachelor's degree in Mechanical Engineering with an aeronautical option and I hold a Master's degree in Mechanical Engineering.

Next slide, please.

First, I'm going to talk a little bit about the regulatory bases for the emergency plan. The Vogtle Early Site Permit Application opts for the provisions of 10 CFR 52(b)(2)(ii) which allows the Applicant to propose a complete and integrated emergency plan. The proposed ESP emergency plan is designed to meet the provisions of 10 CFR 50.47(b) which contains 16 planning standards related to the emergency preparedness function.

In addition, the ESP emergency plan is designed to meet the applicable sections of 10 CFR 50, Appendix E, including Section 4 which specifies the required content of emergency plans; Section 5 which specifies provisions for submitting emergency

implementing procedures to the NRC for review; and Section 6 which specifies provisions for the Emergency Response Data System that are known as ERDS.

Next slide, please.

JUDGE BOLLWERK: We're now on Slide 4, I take it?

MR. AMUNDSON: Slide 4. Now I'm going to talk a little bit about the regulatory guidance that we used in the development. In developing the ESP emergency plan Southern Nuclear used a number of regulatory guidance documents. The first Reg. Guide 1.101. This is the overall guidance document that endorses additional regulatory documents such as NUREG 0654 and NEI 99-01. NEI 99-01 is used for Emergency Action Level or EAL development for light water reactors.

NUREG 0654 provides guidance for the development of emergency planning zones, guidance for the detail to be addressed in the emergency plan to meet the 16 planning standards of 10 CFR 50.47(b); guidance for public notification and emergency systems such as sirens; and guidance for evacuation time estimate studies.

NUREG 0654, Supplement 2, provides additional guidance related to ESP emergency planning.

Because NEI 99-01 was not designed with consideration of advanced passive reactor design features, the industry developed a new guidance document, NEI 07-01 which is based on NEI 99-01 and incorporates consideration of advanced passive reactor design features. NEI 07-01 is currently under review by the NRC. NRC endorsement of NEI 07-01 is anticipated in late 2009.

NUREG-0696 and NUREG-0737, Supplement 1, contain guidance related to the function, capabilities, and design of emergency response facilities such as the TSC and the OSC. Again, Southern Nuclear developed the emergency plan and is designing emergency facilities to be compliant with the regulatory guidance contained in the listed regulatory documents.

JUDGE BOLLWERK: If I could stop you for one second there. The Supplement 2 to NUREG 06-54 FEMA Rep. 1, how does it differ, what does it add relative to the ESP?

MR. AMUNDSON: Supplement 2 provides a specific guidance that has to be required, has to be addressed in an Early Site Permit application. The primary use is for the major features options that's allowed 10 CFR 52, but it does provide additional

guidance in terms of some of the things that you need to address in an Early Site Permit application.

Since we chose to opt for the full and complete integrated emergency plan, we didn't actually use all of that guidance. We really then fall back to 0654, FEMA Rep. 1 in itself completely.

JUDGE BOLLWERK: If I understand what you're saying, probably Supplement 2 is more applicable or useful to someone that was coming in filing essentially an ESP relative to a new facility on a new site?

MR. AMUNDSON: Well, it's really -- it depends on whether you're opting for the complete and integrated emergency plan or not. There's two options. You can either submit major features of an emergency plan under Part 52 and that's when you really need to use Supplement 2, is to make sure you have the appropriate issues addressed in your major feature section.

JUDGE BOLLWERK: All right. Thank you.

MR. AMUNDSON: Next, slide, please, Slide 5.

I'm going to talk a little bit about how we developed the emergency plan. The ESP emergency plan was developed by starting with the existing

Vogtle emergency plan and revising the elements to incorporate features that would accommodate the addition of AP 1000 reactors at Vogtle.

Because many of the elements of the emergency plan are common to all units at the site, a base plan was developed that addresses all common elements. The base plan also contains appendices that are common to all units; for example, a description of the public notification system.

To address the element features that are unique to each design, a separate annex for each design was developed. For example, detailed Emergency Action Levels for each design are or will be contained in the respective annexes.

Each annex contains a set of appendices unique to the reactor design. For example, the annex for Units 3 and 4 contains the emergency planning ITAAC. It should be noted that a separate licensing action will be required to gain approval of the ESP emergency plan for Units 1 and 2. Southern Nuclear will submit the emergency plan for approval approximately one year prior to the scheduled full participation exercise for Unit 3.

Based on an analysis of methods to effectively implement the emergency plan at multiple

unit sites, it was decided to build a new Technical Support Center within the protected area boundary.

If I could have the next slide, please?

I'm going to talk a little about the Technical Support Center. The TSC will be located in the Communication Support Center within the protected area. And if you can -- I can point it out right here on the slide. If you take a look at that, and this general boundary area here, this is the protected area. So the -- you can see -- there we go. The TSC will be located within the protected area.

JUDGE BOLLWERK: The protected area is the part that looks like it's in a --

MR. AMUNDSON: It's this area right here with the multiple -- looks like a fence with many layers to it.

JUDGE BOLLWERK: And the TSC, is number 305?

MR. AMUNDSON: The TSC is number 305, that is correct. It's about 1700 feet from the TSC to the control room of Unit 4 which is right about there. So you can see that that's the distance. Then Unit 3 control room is right about here. Then ultimately the Unit 1 and 2 control room is right in that area there.

JUDGE BOLLWERK: So what you're pointing to is the -- for Unit 4, it's right next to what is

labeled on the diagram is U4?

MR. AMUNDSON: Correct.

JUDGE BOLLWERK: Just to the right of it. And same with U3?

MR. AMUNDSON: Correct.

JUDGE BOLLWERK: And then with respect to U2 and U1, it's right in between them?

MR. AMUNDSON: Between the two, that is correct.

We did some estimates and we are estimating that it would take approximately ten minutes to walk between the TSC and the Unit 4 control room, however, as a compensatory measure, we are planning to have motorized vehicles to be available for personnel to use for transit between the TSC and the site control rooms

In addition, on this drawing we have a conceptual layout drawing of what the TSC will look like. We can expand or minimize the drawing just a bit. You can see over on the lower left of the drawing is what the TSC layout will look like. This is patterned very much after the layout that we currently have for an emergency off-site facility in our Birmingham headquarter office.

If I could go back to the previous slide,

go back to Slide 5, please? Thank you.

Now I'm going to talk a little bit about the EOF. We'll come back down here. The existing Emergency Off-site Facility located in corporate headquarters in Birmingham, Alabama will be modified to accommodate the additional two units at Vogtle. Use of the centrally-located EOF was approved by the Commission in February 2005.

Also in support of the ESP emergency plan development, a new evacuation time estimate study was performed. The results of the study were used to confirm that no significant impediments to emergency planning exists using the existing emergency planning zones. In addition, new certifications were received from 21 state and local agencies, certifying their concurrence that the proposed plan is practicable and that the Agency commits the further development of the plans. The agencies are also listed on the two slides following the site feature slide.

So if we can go to Slides 7 and 8 very quickly -- 7 and 8 both give you a list of the agencies that we received these certifications from.

Slide 8, please? And then if we could move to Slide 9.

Next, I'm going to be talking about

emergency plan key elements. The following several slides address the emergency plan key elements. Although the ESP emergency plan complies with all 16 planning standards of 10 CFR 50.47(b) and the associated requirements found in 10 CFR 50, Appendix E, we're only going to talk about a few selected key elements in this presentation.

Key elements may be defined as those that are considered to be risk significant as defined in NRC inspection manuals and others that are of key importance to the regulator and the public. Risk-significant elements are: emergency classifications, notifications, accident assessment, and protective response. Other elements that we judge to be key are emergency communications and emergency facilities and equipment.

Slide 10, please?

The first element I want to talk about is emergency classifications. Classification of emergencies will follow the industry standard definitions of notification of an unusual event, alert, site area emergency, and general emergency.

The definition of an EAL is a predetermined, site-specific, observable threshold for a plant initiating condition that places the plant in

a given emergency classification level. An EAL can be an instrument reading; an equipment status indicator; a measurable parameter; a discrete, observable event; results of analyses; entry into specific emergency operating procedures; or other phenomena which if it occurs, indicates into particular emergency classification level.

An initiating condition is defined as one of a predetermined subset of nuclear plant conditions or either the potential exists for a radiological emergency or such an emergency has already occurred.

Detailed Emergency Action Levels will be developed to conform with the proposed Guideline NEI 07-01. EALs provide a variety of equipment-monitoring subpoints and other classification severity levels of which the emergency director must make the classification if an emergency condition exists. EALs are provided for a variety of initiating conditions for each of several recognition categories including: radiological releases, fission product barrier challenges, equipment malfunctions, and hazards including natural phenomenon and security issues.

NEI 07-01 is currently under review by the NRC and is patterned after NEI 99-01 which is endorsed by Reg. Guide 1.101. NEI 07-01 contains EALs that are

unique to the advanced passive reactor designs.

It is anticipated that detailed EALs will be submitted to the NRC for final confirmation, approximately 18 months prior to fuel load. In addition, EALs will be required to be in place to complete ITAAC 1.1.2.

Next slide, please.

Next area, key element I want to talk about is notifications. Regulatory guidance for notifications is contained in NUREG 0654. Once an emergency condition exists, the emergency director will classify the event and initiate prompt notifications. Site personnel will hear a tone alert like a siren over the public address system, followed by an announcement regarding the nature of the event and action site personnel should take, if any.

The emergency response organization members would be directed to proceed to their assigned emergency facility. In addition, a message will be prepared and sent via telephone using an auto-dialer system to all off-site ERO personnel.

ERO personnel are equipped with pagers. The auto-dialer system first sends a message to all pagers. Then it dials home phones and cell phones which may include Southern-linked phones which are

provided for some ERO members.

State and local officials in the Savannah River Site would be notified within 15 minutes via the emergency notification network. This is a network that is a private, dedicated telephone system.

The NRC will be notified as soon as possible, but no later than one hour after the classification via the emergency notification system which is a part of the federal telecommunication system.

The public would be notified via sirens and tone alert radios. Sirens and tone alert radios are activated by county officials. Tone alert radios are provided by Southern Nuclear for all residential, public, and commercial buildings within the 10-mile EPZ, excluding the Savannah River Site which is responsible for notifying personnel on its site.

JUDGE BOLLWERK: Are we within the EPZ here?

MR. AMUNDSON: Excuse me?

JUDGE BOLLWERK: Are we within the EPZ here for Vogtle, for the existing Vogtle facility?

MR. AMUNDSON: No. Waynesboro is about five miles outside the 10-mile EPZ.

JUDGE BOLLWERK: Thank you.

MR. AMUNDSON: The next slide, please. Thank you.

Accident assessment. Initial accident assessment is performed by the shift manager or shift supervisor, whoever is performing the duties of the emergency director. This is done using installed equipment and monitors. Accident assessment requirements are contained in emergency implementing procedures. Once emergency response facilities are activated, accident assessment is performed from the TSC. On-site conditions are monitored via radiological monitors.

In addition, radio chemistry analysis may be performed on water and air samples. Radiological monitors may be used to determine the release rates and computer systems may be used to estimate potential doses off-site. In addition, field monitoring teams may be placed in the field to monitor release plumes and may take samples of air, water, or soil for radiochemistry analysis.

Radiological monitors and system monitors are used to provide data related to potential radiological releases. Portable monitors may be used to assess local radiological conditions. Sample monitoring and analysis equipment is available in the

chemistry labs. Computers are used extensively to process data and assist emergency directors in decision making.

JUDGE JACKSON: Can I ask a question? Where will the radiochemistry analysis be done with --

MR. AMUNDSON: There's a couple of locations. We can do radiochemistry analysis onsite, first of all.

JUDGE JACKSON: Close by -- where is it located on the site?

MR. AMUNDSON: Typically, it's in the chemistry labs. And those are located in the power block, respective power blocks. So there will be a chemistry lab --

JUDGE JACKSON: In one of them?

MR. AMUNDSON: There is a chemistry lab in both Units 3 and 4, and there's a single chemistry lab for Units 1 and 2.

JUDGE JACKSON: So you think you'd have this capability in each of those?

MR. AMUNDSON: Correct, yes.

JUDGE JACKSON: Okay.

MR. AMUNDSON: We also have the capability of transporting it offsite, if necessary. There's a Georgia Power Corporation has a chemistry lab

available offsite and for -- if it's highly contaminated, we have a contract with AREVA up in the Virginia area to transport it.

JUDGE JACKSON: Thank you.

MR. AMUNDSON: The primary system for accident assessment is MIDAS. The basic functions of MIDAS are the calculation of dispersion of the release material as it travels downwind and the estimation of the resulting concentrations of this material. Dispersion is modeled using the straight-line Gaussian dispersion model.

Initial dose projections can be made within 15 minutes of a radiological release using this computer system. MIDAS may calculate doses from up to four release points simultaneously and participation effects are considered in the analysis.

Subsequent dose projections will be made approximately every 15 to 30 minutes, depending on the variability of meteorological conditions and/or radioactive releases.

JUDGE BOLLWERK: Quick question. How recently has this software system been in use? Has it been in use for some time or is it relatively new?

MR. AMUNDSON: The system has been in use for a number of years, but it is being updated from

time to time. I don't know exactly when the last version was released. I'd have to go back and check on that.

JUDGE BOLLWERK: But it has been around for some time?

MR. AMUNDSON: Yes, it has. Next slide, please.

I'm going to talk a little bit about protective response. Protective response or protective actions recommendations, usually known as PARs, will usually not be made at lower classification levels. On-site local protective responses could include alerting, assembling, and accountability, site dismissal, radiological monitoring, and decontamination. The emergency director is responsible for providing corrective action recommendations to public officials as part of the initial notifications and follow-up communications. Public officials then issue the protective action orders to the public. These recommendations are based upon assessment actions described previously.

Using available information on plant conditions, projected dose estimates, and any available monitoring data, the emergency director recommends whether the public should be advised to

seek shelter or evacuate. Other factors which influence protective actions will be evaluated by public officials. These recommendations are based on EPA protective action guidelines. In addition, implementing procedures provide guidance on Protective Action Recommendations in the absence of any release or of radioactivity.

The site dismissal of noninvolved station personnel and evacuation and/or sheltering of the general public is recommended for a general emergency, even though there may not have been a release of radioactivity from the plant.

Next slide, please.

JUDGE BOLLWERK: We're on Slide 14 now?

MR. AMUNDSON: Slide 14. Thank you. Emergency communications. The primary means of communicating with the NRC is via the Federal Telecommunications System, the FTS system includes the emergency notification or ENS, the health physics network and several counterpart links. Plant data is transmitted to the NRC via the ERD system.

Communication with state and local officials is usually with the Emergency Notification Network, but we do have alternative means of communication. This may include an administrative

decision-making line, that's a dedicated line that we have, and/or the Burke County Emergency Management Radio System. Commercial telephone systems may also be used, if necessary.

Communication on site may be accomplished via dedicated telephone systems, sound power systems, standard PDX systems, Southern Link systems, and/or radios.

Dedicated circuits allow each control room to communicate directly with the TSC, EOF, and OSC. In addition, each control room contains ENN and ENS circuits.

Following an event, the control rooms are not expected to communicate directly with each other, but could use the existing communication systems such as telephones and radios, if necessary.

Next slide, please.

And maybe we could just go right Slide 16 again. We'll talk about the TSC. The new TSC which meets or exceeds the guidance of NUREG 0696 and NUREG 0737, Supplement 1, with the exception of the guidance to locate the TSC within two minutes of the control room. The TSC will be located within the protected area between Units 2 and 3 and will be housed in the Communication Support Center. We estimate that

personnel will take approximately ten minutes to transition from the Unit 4 control room to the TSC.

Industry experience over the past 25 years indicates that close proximity of the TSC and the control room is not important. Following TMI, it was anticipated that the decision makers would need frequent, face-to-face communication with the control room for technical and data exchanges. But with the advent of advanced communication systems that provide detailed voice and data information, these anticipated face-to-face communication sessions seldom, if ever, occur during drills and exercises.

The TSC will be sized to accommodate an emergency on more than one unit at a time and will have communications equipment, data processing equipment, and support facilities to handle all on-site technologies in all four units.

The TSC will be activated approximately one year prior to fuel load on Unit 3 to support the required full participation exercise.

And if we could go back to Slide 15 again. Thank you.

The Operational Support Centers for Units 3 and 4 will be located in the Control Support Area which is adjacent to the respective control rooms.

The EOF will continue to be located in Southern Nuclear's headquarters in Birmingham, Alabama. The EOF is already designed to accommodate emergencies on all three Southern Nuclear sites. The design will easily accommodate the addition of the two new units at Vogtle.

The primary function of the EOF is to provide technical assistance to the TSC, coordinate off-site assistance and response to state and local agencies and to provide direction control and assessment of off-site radiological monitoring.

The NRC approved the consolidation of the EOF for all Southern Nuclear facilities and corporate headquarters in February 2005.

JUDGE JACKSON: Who typically then would be the emergency director, let's say in the middle of the night and something happens?

MR. AMUNDSON: Typically, it will be a designated shift manager on site initially.

JUDGE JACKSON: How many would be on the emergency team who would presumably assemble in the TSC? Or is that not --

MR. AMUNDSON: Well, there's a minimum required number that's contained in Part B of the emergency plan. I don't have that number right off

the top of my head. But it would be on the order of 15 to 20 people that would report to the TSC.

And there clearly would be a senior leader for the site, could be the site vice president. Could be one of the assistant managers, plant manager, would then take on the role of the emergency director.

JUDGE JACKSON: What's the time frame for -- what would be the time frame for getting this team functioning then?

MR. AMUNDSON: Sixty minutes. We're required to have the TSC up and running within 60 minutes of activation of the emergency response organization.

JUDGE JACKSON: Okay, and then how long -- the facility you have in Birmingham then is presumably staffed 24/7?

MR. AMUNDSON: The facility in Birmingham is ready to be staffed. Again, we have a set of duty teams that are ready to go. They're on call and should an event occurred at any one of the Southern sites, they get alerted and the EOF would also be up and running in 60 minutes.

JUDGE JACKSON: That's 60 minutes also?

MR. AMUNDSON: Yes.

JUDGE JACKSON: Okay, thanks.

JUDGE BOLLWERK: Can we pull up Slide 16. It might be useful to look at that while we're talking here about it. If you had a question, go ahead.

JUDGE TRIKOUROS: Yes, are you comfortable with one TSC for four plants in the current configuration? You don't see any negatives to that?

MR. AMUNDSON: Actually, from an emergency preparedness perspective, I find it favorable. It's the preferred configuration in terms of assuring consistent planning, consistent execution of a plan. It provides us a single location for people to report to. We don't have to have any confusion as to where to report for the emergency facilities. Yet, it provides a single point contact for offsite agencies so it's easier and better coordination of activity with offsite agencies using a single point of contact and so on. I really don't see any negatives from an emergency preparedness perspective.

JUDGE TRIKOUROS: What's the current status of the TSC, of this TSC design in terms of the DCD? I mean originally, I understand it was a Tier 1 requirement to have the TSC located in the more conventional place. Where does it stand now with respect to the DCD?

MR. AMUNDSON: Maybe it would be best if I

deferred to Mr. Musico to give us a little update on where we're at with that.

MR. MUSICO: I'll be addressing that in some of my slides, if you care to wait. Otherwise, I can describe it right now. It's quite complicated.

JUDGE TRIKOUROS: I'd be happy to wait. I just wanted to touch on some of these kinds of operational issues.

I'm going to have to talk louder into this thing because it likes loud noise.

This face-to-face requirement that was part of the original post-TMI to implementation, what are your thoughts regarding that, the need for that?

MR. AMUNDSON: Again, I do remember -- I was in the industry at TMI and I've been in the emergency preparedness in one way or another just about since TMI.

When we first put the TSCs around the country into operation, we had limited data capability in particular. We had, for those of us that were in the Westinghouse plants, we had a computer system called a P-250 and it had very limited data capability. And so to get good data, you had to go to the control room and get that data. So you had to do those face-to-face communications.

But one of the requirements of TMI was the installation to install a Safety Parameter Display System or SPDS. And in the mid-80s we installed those SPDS systems. And suddenly you didn't need that kind of face-to-face communication any more because now you had it on a computer screen in the TSC, all of the relevant information that you needed.

In addition, you had things like fax machines that became much more prevalent and reliable to move data and paper, if you needed it. Phone systems became more robust. For example, today, we can easily put people on a speaker phone and bridge and create a bridge connection and have a conference over the phone. We don't need that face-to-face communication any more.

So given all of those kinds of advances in technology, particularly -- and it's played out. We do complete drills and exercises frequently and you get a good chance to see how this works. And typically, what happens is you'll have a turnover, the emergency director that comes in from off-site will go to the control room and get a face-to-face turnover with the shift manager, then move to the TSC. And that's really the only time you see personnel moving directly from the TSC to the control room.

JUDGE TRIKOUROS: It's an interesting question for me. I was at TMI-2 from day one to the end, both in the engineering office and in the plant and in the control room. And I think the one thing that's missing from all of this is when really serious decisions were being contemplated like breaking pipes, literally doing very painful, unusual things that were contemplated during the course of that month, the face-to-face really was an important consideration. In emergency drills, I think that it's not needed and I agree that with all the communication methods that are currently available, emergency drills can be conducted beautifully without any face-to-face.

But my sense from my experience that face-to-face does have a great value. Now the -- especially when very, very difficult decisions have to be made that have consequences that are very scary for a lot of people, nobody wants to make those decision over the phone. They really want to get together and talk and see each other's faces and what they're thinking about.

MR. AMUNDSON: And I appreciate the thinking and I certainly agree with the thought. I will point out though that within the Technical Support Center, one of the positions is an operations

supervisor, so essentially you'll have the operations manager or one of the manager's key subordinates acting as the operations leader, as well as all of the other key leaders within the organization. And if you look up the layout, there's conference rooms available adjacent to the Command Center. So those kinds of decisions and there's going to be room for other people involved too, not just -- again, if you look at the size of the TSC, we're kind of anticipating some of those kinds of events that you just described.

The Command Center area is planned to be about 3700 square feet and that should be plenty of space to hold those kinds of decision-making meetings and those will be face-to-face, certainly. When you get into those kinds of key decisions and that's why we build the TSC the way we do and so those kinds of face-to-face meetings will occur and the TSC is designed to accommodate that.

JUDGE TRIKOUROS: And I can see some very clear advantages. It's really six of one, half a dozen of the other. You're not very far. You're only a ten-minute walk, as I understand it.

MR. AMUNDSON: Right.

JUDGE TRIKOUROS: I've been to the site and it didn't look very far to me. But I think these

are issues that really need serious consideration and that's why, I guess, we'll explore where the licensing of this is momentarily.

But the -- what will happen to the TSC at each of the existing units?

MR. AMUNDSON: There's a single TSC for Units 1 and 2 right now. Our current thinking is that we will convert the existing TSC into a new Operational Support Center for Units 1 and 2.

Since you mentioned the DCD, the current version of the DCD anticipates the TSC being located in this control support area which is adjacent to the control room. And our plan is to convert that area into the Operational Support Center.

JUDGE TRIKOUROS: What is the difference between an Operational Support Center and what we're talking about here? What do you use it for differently?

MR. AMUNDSON: Operational Support Center is the third standard facility -- if you go back into 0696, it specifies three facilities, TSC, EOF, and an Operational Support Center. The Operational Support Center is where most of your reserve operators, your craft people, craft leaders, health physics technicians, and so on congregate and meet. That's

where, for example, if you're putting a repair team together, you would assemble the team in the OSC, provide them with appropriate protective equipment, conduct your pre-job briefs and so on before you send them out to the field to perform whatever repair activities you might be conducting.

JUDGE BOLLWERK: It has an operational basis, not necessarily an emergency planning basis?

MR. AMUNDSON: No, OSC is an emergency facility.

JUDGE BOLLWERK: Okay, got it. Sorry.

JUDGE JACKSON: It looks like you have your -- the way this is configured, you have room for the support team to be around the central area there. Is that correct?

MR. AMUNDSON: Actually, the support area is intended to be support for the personnel that are in the technical support center, if you're referring to the figure. Again, you think in terms of long-term staffing. Folks are going to be working on a shift basis. We may have some basic support facilities in terms of showers and so on.

In addition, we need facilities to maintain equipment and supplies, that sort of thing, and of course, records.

JUDGE JACKSON: That's what I was referring to, would be the support for the emergency team that's working there in the TSC. I noticed, for example, that you have dose assessment indicators, so I assume the MIDAS calculations or the plume calculations, is that where --

MR. AMUNDSON: That's right. That's where the whole thing is occurring. There's a similar scenario in the EOF by the way. Initially, that dose assessment function is performed while -- very early on it would be performed by the shift manager. Then it's performed by the TSC and then typically, that's transferred, that responsibility is transferred to the EOF.

JUDGE JACKSON: Would there be staff 24/7, for example, that could do your plume?

MR. AMUNDSON: Yes, shift managers, all emergency directors, shift managers, are trained to perform initial dose assessment.

JUDGE JACKSON: So that would be true of all of the support teams that you would need?

MR. AMUNDSON: Well, then you have the duty teams. Typically, you have four to six duty teams that are designated. Now those will be on call teams. So some of those might be an hour away from

the site, but once they arrive, there's always somebody on the duty team that's responsible for dose assessment and those folks are all trained on use and operation of the MIDAS.

JUDGE JACKSON: Okay, thanks.

JUDGE TRIKOUROS: Within the TSC, is it apportioned in some manner per plant? How is it set up? Is it the same -- are they the same display terminals that can call up either, any of the plants' information? How is that set up?

MR. AMUNDSON: There are work stations at each of these -- at the front of these tables. There will be a work station with a screen in front of each of the chairs. In addition, on this wall, if you look at where the lettering says "Technical Support Center", right there --

JUDGE BOLLWERK: Can we blow that up, if possible?

MR. AMUNDSON: If you look, you can see there's little designator. Those are actually five flat panel screens. Those will be either plasma screens or rear projection screens that allow you to duplicate what's on up to five different displays. You can call up anything from the trending that's going on and virtually duplicate what the operator is

looking at in the control room or you can call up what's going on in terms of emergency planning. You can call up the log; if you want, of where we're at, what the status is. You can actually take the MIDAS output and put it up on the screen, so everyone can be looking at.

So one screen might have plant parameters, another screen might have dose assessment screens on it. Another screen might have the status of repair teams and that sort of thing. So there's a complete set of information that can be provided, both on the wide screens and then you can call it up individually on local screens.

And of course, at Southern, we use a web EOC concept so we actually have the ability to access this information. Once you log into the Southern system and you have the appropriate access codes, you could actually log into this information from your home, if you wanted to.

JUDGE TRIKOUROS: Why don't we move on?

MR. AMUNDSON: Okay, I'm just about done --

JUDGE BOLLWERK: I just had a couple -- could you bring it back down again?

You had mentioned that Unit 4, the one

that's furthest away from the EOC is about a ten-minute walk, what about Unit 2 that's on the other side, the existing unit?

MR. AMUNDSON: Well, from the Unit 1 and Unit 2 control room, I haven't done the exact measurement, but it's probably on the order of seven, eight minutes, something like that.

JUDGE BOLLWERK: You also mentioned, I guess, that you're going to have some kind of vehicle service to move people back and forth?

MR. AMUNDSON: We expect to have dedicated vehicles located at the TSC and probably outside of each of the control room areas that are outside of each of the plants. It will be vehicles that are designated for security and/or emergency room response personnel. Probably a golf cart.

JUDGE BOLLWERK: And basically it's one per unit? How will that play out?

MR. AMUNDSON: I don't think we've decided how many it will actually be. We'll have to have enough so that we can perform whatever function we need to have. Some of the detail will be worked out in the implementing procedures.

JUDGE BOLLWERK: You mentioned communications being important. I see a

videoconference center. We talked about face-to-face. Is video conferencing part of the system?

MR. AMUNDSON: There is video conferencing capability, yes.

JUDGE BOLLWERK: And would that be connected into the control room in any way?

MR. AMUNDSON: At this point we don't have that into the design, but that's certainly something that we're looking at.

JUDGE BOLLWERK: And what other forms of communication, for instance, where people will be using PDAs, Blackberrys, that sort of thing to communicate? I don't know what other --

MR. AMUNDSON: Well, in terms of the emergency plan, we rely first of all on our dedicated phone circuits, backup phone circuits and so on. There's nothing to preclude anyone from using either a cell phone or a PDA, whatever, Blackberry, whatever the case might be. But it's not built into our plan. It's available, if you need to use it, but you're not required to use it.

JUDGE BOLLWERK: All right. Board Members? All right, thank you.

Let's see. We're on Slide 17, I guess.

MR. AMUNDSON: Seventeen is the final

slide. I just wanted to summarize very quickly. The ESP emergency plan is compliant with applicable regulations and regulatory guidance. In addition, industry best practices have been incorporated into the emergency plan, when appropriate.

The ESP emergency plan builds on the existing Vogtle site emergency plan and incorporate those elements needed to incorporate two additional reactors on the site using the AP-1000 technology. The key elements described were taken to be the four risk-significant planning standards which are emergency classification, notifications, accident assessment, and protective response.

In addition, two other planning standards were discussed, emergency communications and emergency facilities and equipment.

That concludes my presentation. So if there's any other questions or comments, I'll entertain them.

JUDGE TRIKOUROS: Just an aside, the training, the emergency response organization, will people have overlap responsibilities, for example, possibly Units 1 and 2 and 3 and 4. One person being trained on both or how is that contemplated?

MR. AMUNDSON: We have not worked out all

of the details and how all of the duty teams will go together. We're going to be doing functional analysis, some basic task analysis in terms of what does it take, what kind of training do we need to provide to be qualified on both technologies at the same time.

My guess is that at this point, the preliminary analysis I would suggest there's going to be some positions, for example, dose assessment. It's hard to imagine that you can't be qualified to do dose assessment on both Units 1 and 2 and 3 and 4 at the same time.

However, for those people that have to make decisions regarding classifications, for example, there will be some differences between EALs and it might take a fair amount of training to be qualified on both Units 1 and 2 as well as 3 and 4. So we may designate special training and qualifications for some of those positions.

JUDGE TRIKOUROS: Thank you.

JUDGE JACKSON: Just one more quick question. I assume you'll have -- I guess I'd call it probably an emergency management professional there most of the time just to help facilitate making this place run, bringing up the graphics that are needed,

maybe making changes, tracking action items. At least when I've done this, it's the quality of what you get done is often dependent upon somebody that's in that room that knows all of the systems, all of the communication systems, the video displays, how to bring things up. And that takes a fair amount of skills for somebody to stay on top of it all the time. Do you have a person like that available?

MR. AMUNDSON: That's a good point. There will be a staff. How many people that will be, I don't know that we've got all of that worked out in detail yet, but there will be emergency planning staff, emergency planning coordinators located at the site, one or more people. In fact, the preliminary designs that I've looked at would have those, their work stations would actually be located in the TSC.

JUDGE BOLLWERK: A couple quick questions. Is there anything -- you have an existing emergency plan relative to Vogtle 1 and 2. Is the addition of two additional units make any significant changes to that plan in terms of the things you do with evacuations, with sheltering, with the sort of -- the decisions that might have to be made relative to protecting the public?

MR. AMUNDSON: I've got make sure -- I'm

thinking of -- the plan -- the ESP plan that is currently being reviewed and approved by the NRC staff. In fact, incorporates all of those elements for both Units 1 and 2 and 3 and 4 in it, although their review has been limited to 3 and 4.

But by and large, there have been very little adjustments to the Unit 1 and 2, if any, elements of planning. We simply incorporate those elements into 3 and 4 without really making adjustment. In terms of PRs don't change, on-site evacuation or on-site assessments really don't change. We still do, for example, early -- today, and we will in the future, do early-site dismissal at the site area level. That's the same thing that will be -- for Units 3 and 4 will be the same as we have today for 1 and 2.

JUDGE BOLLWERK: You sort of described, and I guess the impacts may well be onsite as opposed to offsite, more directly given the additional units and you've described that and basically there's no change. I take it offsite is basically the same as well?

MR. AMUNDSON: Yes. Offsite should be -- there's almost no impact on the offsite -- the plans, we took a look at the state plans and the county plans

and really, other than some changes that will come in regards to the EALs that we gain approval from the state and local folks, virtually no changes to their plans.

JUDGE BOLLWERK: And again, you have an existing two-unit site. You're now doubling the number of units. Does that have any impact in terms of the interrelationship between the units, the possibility of when you have a problem at one unit, how that may affect the other units in terms of their ability to operate?

MR. AMUNDSON: Well, you already have that decision-making process built into the existing plan already. It's not in the plan itself. It's in the implementing procedures. One of the first things, if you have any event on one unit, you very quickly get into a decision-making process, what to do with the other unit or other units in this case. And those provisions that are already in the implementing procedures, I'm sure, will be brought forth into the new implementing procedures.

But the details of how we -- what decisions we make and how we make those decisions have not yet been made.

JUDGE BOLLWERK: The fact that the current

units you have, 1 and 2, are right next to each other as opposed to 3 and 4 which are somewhat further away, while next to each other, they're separate buildings, as I understand the design, will that, does that play into this at all?

MR. AMUNDSON: It certainly will play into it. But to what extent or how that will play into it I think we have to go through some on-site analysis first and we haven't made all of those decisions yet.

JUDGE BOLLWERK: Maybe one of the questions we'll have for the staff is where that process is relative to the ESP versus the combined license and how that process plays forward.

Do you have another question?

JUDGE TRIKOUROS: I could have a million of them. There are so many interesting things going on. What --

JUDGE BOLLWERK: We have time for only half a million, not a million.

JUDGE TRIKOUROS: What would be the means of data connection between the TSC and the reactors? Will it be all underground, hard-wired connections? If it's in the emergency plan, I simply don't remember.

MR. AMUNDSON: I'm not going to -- I'm

going to have to defer the details on that. I'm not sure that I know -- I know it's going to be hard wired. I know that. How far it's going to be buried underground, I'm not sure.

JUDGE TRIKOUROS: And with regard to Units 3 and 4, I would imagine that the entire control room could basically be duplicated at the TSC and at least in terms of the computer aspect of it. I haven't studied the AP-1000 control room, but it's basically just a computer terminal with a mimic attached or in the room.

MR. AMUNDSON: That's a fair approximation, yes.

JUDGE TRIKOUROS: So there are some distinct advantages in the current situation with respect to understanding what's going on in the control room because of these types of things?

MR. AMUNDSON: That's absolutely correct. The ability to replicate information and data that's available to operator in the control room and to decision makers in the Technical Support Center and in the EOF is greatly enhanced with these digital designs.

I would not go so far to say though as it's a duplication because there is not all of the

information available in the control room will be moved into the TSC or the EOF.

JUDGE TRIKOUROS: Okay, thank you.

JUDGE BOLLWERK: Anything at this point, Judge Jackson?

JUDGE JACKSON: Considerable effort has gone into EALs and I don't know whether it would be better to wait until the staff presentation or I was curious as to if you could characterize what changed in the EALs between what was there before and what was needed to accommodate AP 1000?

MR. AMUNDSON: I can certainly answer that. I've been involved with the development of 0701 from its inception so first of all, the degree of similarity between 9901 and 0701 is very high. There's not that much difference. The difference lies primarily in the area of instrument and controls, digital controlled rooms versus analog controlled rooms, particularly in relationship to annunciator systems. We've had to -- because it isn't like -- the annunciator system isn't a unique system. It's built into the digital control and information systems that you have, so we had to modify some EALs in that regard.

In addition, there are certain aspects of

the electrical design that are different in the sense that they're not all required. AC power isn't required for safety parameters in the passive designs. So we made some modifications to the EALs in regards to AC power, particularly off-site power. And at least we have proposed changes. Some of those changes are still being reviewed by the NRC staff and quite frankly, I don't think we've got 100 percent concurrence from the NRC staff on where we're going with that, but there will be differences in the AC power area. But other than those two areas, they're virtually the same.

JUDGE JACKSON: Okay, thanks.

JUDGE BOLLWERK: Judge Trikouros, anything further?

All right, we've been at it for a little over an hour. Let's go ahead and take about a ten-minute break and we'll come back and talk with the staff at that point. So let's come back at 10 'til. Thank you very much.

(Whereupon, the above-entitled matter went off the record at 2:51 p.m. and resumed at 2:51 p.m.)

JUDGE BOLLWERK: We're back from a short break and we're talking about site emergency plan. We've just heard from the witness for Southern and

let's go then to the witnesses for the NRC staff.

MR. ARAGUAS: We're going to start with just a brief presentation on the ITAAC, as you requested, at the end of yesterday's hearing.

JUDGE BOLLWERK: All right.

MR. ARAGUAS: With that, my name is Christian Araguas. I'm the Safety Project Manager for the review of the ESP and the LWA. With that, I'll start with ITAAC.

The Inspections, Tests, Analyses, and Acceptance Criteria are defined as the inspection test analysis including those applicable to emergency planning that the Licensee shall perform and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that if the inspections, tests, and analyses are performed, and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license and the provisions of the Commission's rules and regulations.

One of the original goals of ITAAC was to achieve a stable and predictable licensing process. The purpose of ITAAC is to verify that an as-built facility conforms to the approved plant design and applicable regulations. When coupled with the COL,

with the ITAAC for site-specific portions of the design, they constitute the verification activities for a facility that should be successfully met prior to fuel load. If the licensee demonstrates that the ITAAC are met, and the NRC agrees that they are successfully met, then the licensee will be permitted to load fuel.

In general, a system with safety-related functions, safety-significant functions or risk-significant functions should have ITAAC associated with them. In general, you'll notice that ITAAC appear in a table format with three columns and I'll say the exception which Bruce will go over is EP ITAAC which tend to have four, but for the most part they come in the format of three columns. The first column contains the specific text for the design commitments. The second column contains the specific method to be used by the licensee to demonstrate that the design commitment in column one has been met.

The method is either by an inspection, a test, an analysis, or any combination of those three. The third column contains a specific acceptance criteria for the inspection tests or analyses described in column two which if met, demonstrate the design for the commitments in column one have been

met.

For the purposes of this proceeding, the Applicant has submitted an ESP application which requests approval for complete and integrated emergency plans that proposed ITAAC for the emergency plans.

In addition, Southern's LWA also contains ITAAC associated with the requested construction activities. And those we will cover. I'm not sure we plan to cover in detail, the emergency planning ITAAC, but we will cover the specific LWA ITAAC in future presentations.

JUDGE BOLLWERK: All right. Any questions up to this point?

Thank you, sir, for putting that together on the fly. We appreciate it.

I think you've mentioned this, but just so I've got it clear in my mind, the ITAAC that relate to the ESP would be then -- have to be met as part of the ITAAC with the COL. In other words, they would go together. They would be looked at at that point?

MR. ARAGUAS: The regulations allow for them to meet prior to issuance of a COL, but in the case of Vogtle, I'm not sure that they're going to be able to -- given their schedule, close out of the

ITAAC with the LWA. And for the emergency planning -- I think there's a few they could do. But in the event they don't, they do carry forward, as you noted into the COL, as ITAAC.

JUDGE BOLLWERK: So there is the potential with ESP that those ITAAC could be done as part of the ESP process?

MR. ARAGUAS: That's correct. The regulations allow for that.

JUDGE BOLLWERK: What would the distinction be between those are done as part of the ESP process and those that are done or deferred to the COL? What's the --

MR. ARAGUAS: At the COL stage, they'd have to submit a Notice of Hearing and in that notice, they would have to state the ITAAC that were closed out.

JUDGE BOLLWERK: As part of the COL?

MR. ARAGUAS: As part of the COL. That's correct.

JUDGE BOLLWERK: And in terms of the ESP, how would that be done, then?

MR. ARAGUAS: They would perform the ITAAC and that's whenever they -- it's up to their schedule as far as when, for example, for the LWA, it's

whenever they put a backfill in, they would perform those tests. As far as when we would get involved, it's, as I mentioned, they would have to submit a notice, the documents, the performance of that ITAAC and I don't think we would look at that until that stage.

JUDGE BOLLWERK: So since you mentioned it, in terms of the hearing notice, it would go out relative to the ITAAC to deal potentially with the LWA.

MR. ARAGUAS: Right.

JUDGE BOLLWERK: When would that hearing notice be done?

MR. ARAGUAS: At the COL stage, whenever it is that they complete the ITAAC.

JUDGE BOLLWERK: All right, so the sooner they complete the ITAAC, the staff looks at it. It appears adequate to the staff, and then the hearing notice is issued? Is that the process?

MR. ARAGUAS: That's correct.

JUDGE BOLLWERK: All right. Does counsel want to say anything about that? You're looking -- we can talk about that later, if you want to generate anything else on the record, but we'll leave it at that point, where we are.

MR. BLANTON: Your Honor, I have just one thing that might clarify that.

JUDGE BOLLWERK: All right.

MR. BLANTON: If I understand -- I'm sorry, I can't get myself close enough to this.

As I understand it, the way it would work is whatever ITAAC are imposed in the ESP will be incorporated by reference in the COL. Those ITAAC will be satisfied at whatever point in the construction process they are satisfied. The COL would state what the ITAAC are, both from the ESP and the COL and the DCD. Then before fuel load which will be after the issuance of the COL, that we would provide notice that the ITAAC had been satisfied or about to be satisfied and at that point you'd have a potential notice of opportunity for hearing on whether or not the ITAAC had been satisfied.

JUDGE BOLLWERK: All the ESP and COL ITAAC, at the same point.

MR. BLANTON: As I understand it, yes, sir.

MR. ARAGUAS: I agree with that, but I would add if you look at 52.80(a)(3) I think it states in there that a COL Applicant can submit a Notice of Hearing during that stage to suggest that ITAAC had

been closed out. So that opportunity does exist to close out the ITAAC prior to issuance of COL.

JUDGE BOLLWERK: Sounds like it may be someone's option here, but at some point, in any event, those ITAAC -- the completion or the closing out of those ITAAC have to be noticed for hearing.

Mr. Moulding, do you want to say something too?

MR. MOULDING: Yes, Your Honor. I just wanted to mention --

JUDGE BOLLWERK: You need to get close to it. I think you almost have to swallow it.

MR. MOULDING: I think what may have been referred to here was the requirement in 52.80, 52.80(a)(3) indicates that the requirements for a COL application, if the application references an Early Site Permit with ITAAC or a standard design certification or both, the application may include a notification that a required inspection test or analysis in the ITAAC has been successfully completed and that the corresponding acceptance criterion has been met. And the Federal Register notification required by 52.85 must indicate that the application includes this notification.

So that's just indicating if there are

ITAAC and the Applicant believes that that's been met, that would be indicated in the COL application.

JUDGE BOLLWERK: And at this point since those ITAAC haven't been put in place yet, that would not have happened to their application, obviously.

MR. MOULDING: I believe that's correct, yes, sir.

MR. BLANTON: I would agree with that.

JUDGE BOLLWERK: All right. Okay. It sounds like we may be well headed here for all ITAAC as part of the end with the COL. But I will leave that up to the powers that be. They'll have to deal with that at the appropriate time, obviously.

Go ahead, do you have something?

JUDGE TRIKOUROS: I'm sure there are some ITAAC that do have to be completed on a firm schedule. For example, wasn't there an ITAAC associated with the friction between the membrane and the --

JUDGE BOLLWERK: Right, there's two LWA ITAAC, one dealing with backfill and one dealing with waterproof membrane.

JUDGE TRIKOUROS: And clearly there are some ITAAC that have to get done at a certain point in this process, otherwise you can't move forward.

MR. ARAGUAS: I don't disagree and I would

probably defer to Southern, but given the schedule they've put up for the LWA earlier, if you looked at one and actually planned to do the backfill, it's pretty tight with one they expect to all to be issued, so I'm not sure what the timing would be for when they would submit that notice for the COL, but I'm just saying that it may not be that it is done or closed out prior to issuance of the COL.

JUDGE BOLLWERK: All right. At this point then, let's go ahead and move into the balance of the presentation. Again, sir, thank you for putting that together for us. We appreciate it.

I think we're on Staff Exhibit -- in terms of the presentation, NRC000064. And you have the floor.

MR. MUSICO: Thank you. Good afternoon. My name is Bruce Musico. I'm a Senior Emergency Preparedness Specialist with the NRC's Office of Nuclear Security and Incident Response. Just to give you a little background, I am a nuclear engineer, and I have approximately 20 years of emergency planning experience, starting around the time of the Three Mile Island accident. So 20 years out of the last 30 years I've been involved in emergency planning issues.

Just to follow up on Mr. Amundson's

presentation with respect to your question on Supplement 2 to NUREG-0654, Supplement 2 is essentially a water-downed version of NUREG 0654 that is focused primarily on Early Site Permit applications. It does apply in this case. What's unique about it for this application is that while Supplement 2 is primarily focused on the major features emergency plans that would be submitted, it also accommodates the submission in an ESP of complete and integrated emergency plans. And what it does is it points you from Supplement 2 over to the primary document, NUREG 0654/FEMA Rep. 1 to evaluate the adequacy of a complete and integrated emergency plan submitted in an ESP application. So it does apply, but it points you to another document to do the complete review. So that's how Supplement 2 fits in. So I hope that clarifies that.

JUDGE BOLLWERK: Again, it's an integrated plan, that's the basic --

MR. MUSICO: That's correct. That's correct. And that's why the staff's review utilized, first of all, Supplement 2 because it was an Early Site Permit, but was pointed to NUREG 0654 to do the substantive review for all of the details associated with the application and the emergency plan.

Could I have the next slide, please? Slide 3.

I'm here today to discuss the staff's review of the emergency plans for the Vogtle Electric Generating Plant, Units 3 and 4, that was submitted as part of their Early Site Permit application. The Safety Evaluation Report that was written that currently exists is Section 13.3 of the SER entitled "Emergency Planning."

What's unique about this application is that it's the first of a kind. It's the first application that has been submitted under the new Part 52 licensing process with a complete and integrated emergency plan. That's very unique.

In comparison, the prior ESP applications that were submitted were the Clinton, the North Anna, and the Grand Gulf applications. Those were ESPs, but they submitted major features emergency plans which are basically a water-downed version of a description of the emergency plan, rather than the emergency plan itself, the entire and complete integrated emergency plan.

The Part 52 allows an Early Site Permit Applicant to submit either option, either major features or complete and integrated emergency plan.

The NRC --

JUDGE BOLLWERK: Can I ask just one question? For purposes of the COL, what's the difference then in terms of the COL review? Is it using major features as opposed to complete and integrated plan?

MR. MUSICO: Well, there wouldn't be that much from a practical standpoint because at the COL stage, if an Applicant comes in with a COL application, they're required to submit a complete and integrated emergency plan. So in essence, we are seeing the equivalent of what would be submitted in a COLA, COL application, COLA, only submitted at an earlier stage as part of the ESP. The rules allow for that. But from a practical standpoint, you have a complete and integrated plan, it would essentially be the same plan that's submitted, whether in the context of an ESP or a COL.

JUDGE BOLLWERK: I take it -- but if someone came in with a major features as was done at North Anna and the others, then they still owe you all a complete plan in some way?

MR. MUSICO: That's correct. That's correct. Major features is not a complete and integrated emergency plan. A major features plan, if

you look at Supplement 2, the structure of it looks a lot like NUREG 0654. But if you look at the detailed guidance requirements in there for the staff's evaluation of the major features, you'll notice that the requirement is to provide a description of the various major features, not to provide the plan that has those major features. So again, it's primarily a description of certain aspects of the emergency plan, not the full, complete and integrated emergency plan that would be required at the COLA stage.

JUDGE BOLLWERK: Thank you.

MR. MUSICO: The NRC's review consists of the on-site emergency plan. As part of that, the NRC looks at the evacuation time estimate, the ETE and also the NRC in this case, this is another first of a kind example, it looks at the Inspections Test Analyses and Acceptance Criteria, the ITAAC. Just to follow up a little bit on the distinction between ITAACs submitted at the ESP stage and how would that affect it carrying forward into the COL stage, from an EP standpoint, EP for emergency planning, the ITAAC that is identified primarily reflects those aspects of the emergency plan that cannot reasonably be fully described before the plant is physically constructed. That's the basic filtering mechanism which was used to

develop the EP ITAAC.

We developed it utilizing NUREG 0654 FEMA Rep. 1 which gives us the broad range of criteria that we look at to determine the adequacy of the emergency plans and in looking at this a few years ago, we knew we had to develop the EP ITAAC. But nobody knew what EP ITAAC were or what they looked like.

What we did was we utilized NUREG 0654, filtered out those aspects of the evaluation criteria in NUREG 0654 and incorporated that as ITAAC. Those aspects of NUREG 0654 that we determined we felt reasonably could not be addressed under Part 52 prior to physical construction of the plant. So they primarily act as placeholders for various aspects of the emergency plan that just can't be addressed until the plant is physically built.

JUDGE BOLLWERK: Can you give us an example of one such ITAAC?

MR. MUSICO: Yes, for example, the size of the TSC. As part of the emergency plan under the old Part 50 licensing process, we would -- there's a certain size requirement in NUREG 0696 as far as the TSC. Well, in this case the TSC is not built yet. So we can't go out there and confirm that the size of the TSC is adequate and consistent with the criterion with

NUREG 0696. Hence, we have an ITAAC that says that the TSC size is consistent with NUREG 0696 which gives so many square feet. It's a perfect example that it's something that we can't look at because the building isn't there yet. Doesn't exist. So again, that was the basis for the development of emergency plan ITAAC in a nutshell.

So the Vogtle Units 3 and 4 application provided the first example of EP ITAAC. Now that ITAAC was based on the generic ITAAC that the staff developed based on NUREG 0654, generic ITAAC, but the way we wrote that and it's included in Regulatory Guide 1.206 and Section 14.3.10 of the Standard Review Plan, SRP, NUREG 0800, is that Reg. Guide 1.206 and the Standard Review Plan provide generic ITAAC. Those aspects of emergency planning from NUREG 0654 that we felt couldn't be addressed until the plant is physically built. But the way we wrote it was generic in that we addressed all of the requirements for NUREG 0654 guidance document and we had bracketed information, bracketed sentence in the majority of the acceptance criteria column that basically said that the COL Applicant, in this case, the ESP Applicant, will provide the details associated with that acceptance criteria to address the generic acceptance

criteria that we identified, but make it nongeneric and specific to the application that they're providing.

For example, getting back to TSC size again. We have an acceptance criteria and an ITAAC in Reg. Guide 1.206 that says the TSC size is consistent with NUREG 0696. Well, that's pretty broad, but you got to NUREG 0696, it gives you so many square feet. Well, the ESP application ITAAC that we received from Vogtle tells us it will be X number of square feet. So they're telling us exactly what the acceptance criteria is.

The intent of the acceptance criteria column in ITAAC is to be objective. And so we reviewed the ITAAC that was provided as part of the application to determine whether the acceptance criteria was reasonably objective such that we could determine whether or not the ITAAC was -- this is the operative term -- met, was the ITAAC met. And in this case it's easy to objectively see is the TSC size so many square feet or is it not? You can physically go out and measure it. That's objective. So that was the basic intent of generating the generic ITAAC and that's also the filter that we use to review the ITAAC table that was proposed in the application.

When you think about it, it's actually very simple. In other words, is it objective? Is it reasonable? Can you go out there and look at it and confirm it's been met? And that's the criteria that we use. That's the underlying concept behind EP ITAAC, in a nutshell.

JUDGE BOLLWERK: So I take it here, I mean to close the loop, there's an ITAAC 5.1.1 that says the TSC has at least 2,175 square feet of floor space. That's the ITAAC you're talking about?

MR. MUSICO: Let me just turn to it, if I may.

JUDGE BOLLWERK: Sure. It's on page A-34 of the SER.

MR. MUSICO: It's actually in two places, because that's the section as I recall that includes --

JUDGE BOLLWERK: It's a listing of all inspections --

MR. MUSICO: -- of all the ITAAC, but it's also included as a table in the back of Section 13.3. We thought it was helpful to duplicate it there to be used right next to the SER section because the SER section which is quite lengthy and detailed in our discussion refers in each of the subsections to the

applicable ITAAC. So we wanted it to be right there in the same section so you could easily turn to it to verify what we were talking about in the subsections.

What was that number again, Your Honor?

JUDGE BOLLWERK: Page A-34. It's 5.1.1 in terms of the appendix.

MR. MUSICO: Yes, I'm looking at it. I'll compare the two. In Reg. Guide 1.206 --

JUDGE BOLLWERK: You're going to need to tap the mic there.

MR. MUSICO: I'm sorry. I'll compare the two. In the generic ITAAC table of Reg. Guide 1.206, that ITAAC number is 8.1.1. That's comparable to the application and in our ITAAC table in the SER to ITAAC 5.1.1, acceptance criteria. The generic ITAAC says the TSC size is consistent with NUREG 0696. In the application and the SER which reflects the applications ITAAC table, the comparable sentence is "5.1.1, the ITAAC has at least 2,175 square feet of floor space," which is consistent with 0696. Yes, that's correct.

JUDGE BOLLWERK: Thank you.

MR. MUSICO: Moving right along. First slide.

The NRC again reviews the on-site plans,

the evacuation time estimate, and the ITAAC. There is a distinction between the on-site plans and the off-site plans. The primary responsibility for the evaluation of the off-site emergency plans which must be submitted as part of the complete and integrated plan falls under the responsibility of FEMA, the Federal Emergency Management Agency. FEMA is responsible for reviewing the adequacy of the off-site plans which in this case consist of the state plans, the State of Georgia and South Carolina, and all of the county plans which I believe there are five risk counties, three in South Carolina: Aiken, Allendale, you might have to help me here, Barnwell, and then in Georgia we have --

MR. AMUNDSON: Burke County in Georgia.

MR. MUSICO: Burke County in Georgia. We actually have four listed. The Federal Emergency Management Agency performs their evaluation independently of us, but they use the same guidance document that we use, that is, NUREG 0654-FEMA-REP-1. That's the significance behind the designation of the title/FEMA-REP-1 in that this guidance document is a joint guidance document between FEMA and the NRC.

Also, Supplement 2 to NUREG 0654 is Supplement 2 to NUREG 0654-FEMA-REP-1. So FEMA also

uses that joint guidance document. So FEMA reviewed the off-site state and county emergency plans that were submitted in support of the ESP application for Vogtle Units 3 and 4 and provided their findings to us.

As part of our review of the emergency plans, the staff identified seven permit conditions, six of which address, the Emergency Action Level, the EAL scheme, and I'll discuss those in later slides. And one addressed the Technical Support Center location or TSC location.

Slide 4, please?

JUDGE BOLLWERK: Quick question. Does the FEMA review have anything to do with the ITAAC? In other words, do they have any input into whether the acceptance criteria have been met?

MR. MUSICO: With respect to the ITAAC, ITAAC is primarily a procedural tool that ensures that the Applicant meets certain criteria associated with the emergency plans. Given the unique nature of the development of the ITAAC table, there is one ITAAC that addresses off-site. This ITAAC was rather unique and was developed a few years ago when the general ITAAC table was first being developed. And I'll point you to that.

That particular ITAAC is, in the generic ITAAC is acceptance criteria -- I'm sorry. I'll point you to the SER. It's ITAAC acceptance criteria 8.1.3. And I'll read it to you. "The exercise is completed within the specified time periods of Appendix E to 10 CFR Part 50, off-site exercise objectives have been met, and there are either no uncorrected off-site deficiencies, or a license condition requires off-site deficiencies to be corrected prior to operation above five percent of rated power." There's a lot there.

And I can speak to the basis of this ITAAC and I was essentially the principal author of it when we were developing the generic ITAAC table. The intent of this ITAAC was to attempt to make the off-site exercise objectives and possible deficiencies that FEMA looks at and consistent with that under the Part 50 licensing process.

If you look under Part 50, you'll see that if there are off-site exercise objectives, if the on-site is determined by the NRC, the on-site emergency plan and preparedness is determined to be adequate, the Applicant, in this case, the Licensee under Part 50, would be allowed to operate up to 5 percent of rated power.

There was nothing like that until a couple

of years ago that was comparable in the Part 52 rule and so the intent here was to make the Part 52 licensing process comparable to the Part 50 licensing process where under Part 52, if there were off-site exercise objectives that generated -- that were not met and generated deficiencies that FEMA would have to determine when they were resolved, that the licensee, if they satisfied all the on-site objectives and the NRC determined the on-site plan was adequate, that they could operate up to 5 percent of rated power, but no further.

What makes this complicated with respect to the license condition is that the ITAAC is -- the nature of an ITAAC is that ITAAC ends at fuel load. So we were faced with the problem with respect to using an ITAAC in that if we wanted to have an ITAAC to allow the Applicant to load fuel when there are off-site exercise objectives, the ITAAC could not allow the Applicant to go any further. In this case, the licensee, to go any further. So the licensee was stopped at fuel load, could not go up to five percent power. Hence, that would be inconsistent with the Part 50 licensing process.

So what we did, and we have assistance from our Office of the General Counsel in this regard,

was we included the possibility of the introduction of a license condition that could accommodate the delta between the five percent of rated power -- I'm sorry, between the fuel load and up to five percent of rated power, hence making the operation of the reactor up to five percent under Part 52 comparable to the 5 percent of rated power operation under Part 50. So this was intended to address that.

Subsequent to developing this ITAAC and let me step back here in that when the staff was developing the generic ITAAC, the staff wasn't doing this alone. We had a number of public meetings. We had the applicable stakeholders involved in going through earlier versions of proposed generic ITAAC based on NUREG 0654 and determining if this was feasible with respect to the concept of ITAAC, the timing aspects of the Part 52 licensing process, as well as the difficulty of providing or the staff and FEMA coming up with a reasonable assurance finding associated with a complete and integrated emergency plan before the reactor is even built.

What we have here is a major shifting of an integral part of nuclear reactor licensing that emergency planning is dependent upon, a complete shifting of various aspects of our review that would

normally occur after the plant is built under Part 50 to now before the plant is even built. And so that was why we looked at 0654 because emergency planning doesn't just look at what the plans say. Emergency planning has a physical nature associated with the structures and the in-place capabilities. And so we had to differentiate between those aspects of an emergency plan that could be described in the plan that's submitted before the reactor is built under Part 52, and those aspects of emergency planning that we would normally look at and reach conclusions on that we can't look at yet because they're dependent upon an in-plant or as-built configuration of the reactor.

So that was the filtering mechanism we used to look at NUREG 0654 to identify what the EP ITAAC should be in our judgment. Now, we consider ourselves pretty smart in this regard in how we took this approach. But we also recognize that we're not that smart. We don't know everything. And even though we had participation by several of the stakeholders including prospective applicants, including the Nuclear Energy Institute, NEI; including the Federal Emergency Management Agency, FEMA, when we subsequently drafted the Standard Review Plan, which

would be Section 13.3 entitled "Emergency Planning." And in this regard Section 14.3.10 which is where the generic ITAAC table is located, we included guidance to the Applicant as well as to the staff reviewer that the generic ITAAC that was developed with the help of all the stakeholders is our best estimate of what we think can reasonably not be addressed prior to physical construction of the reactor. Hence, we need a place holder. We'll look at it later. It must satisfy before fuel load. But we had the clarification that applicants coming must submit the EP ITAAC consistent with the generic ITAAC table, but they are free to suggest additional ITAAC or fewer ITAAC as necessary and the staff would review that on a case-by-case basis.

For example, for an existing site, the generic ITAAC table was written with a view towards a greenfield site. And the intent was to identify all possible ITAAC that we could think of that reasonably could not be addressed, could not be covered prior to physical construction of the plant. I'm sorry, I'm losing my train of thought here.

JUDGE TRIKOUROS: You were talking about how it was written for a greenfield site.

MR. MUSICO: Oh yes, thank you. I'm

sorry. The generic ITAAC table was written for a greenfield site. For an existing site, however, some of the generic ITAAC that was written to accommodate a greenfield site may address certain aspects of emergency planning that are already in place. Hence, an applicant could come in and would not need some of the ITAAC of the generic ITAAC table and would not include ITAAC for that. However, they would have to fully describe that aspect of the emergency plan in the plan that they submit.

So when we review the emergency plans that are submitted in the ITAAC table, if we don't see an ITAAC that is comparable with the generic ITAAC table, we make sure that the rest of the emergency plan fully addresses that area.

JUDGE BOLLWERK: Let's see, are we done with Slide 4?

MR. MUSICO: Yes. No, that was Slide 3. I'll move along. I'll try to move along a little quicker.

Slide 4 deals, in general, with emergency planning. The basic concepts of emergency planning or EP as we refer to it, are based around the emergency planning zones of which there are two. There's a ten-mile plume exposure pathway or ten-mile EPZ. There is

a 50-mile ingestion-control pathway or 50-mile EPZ. There is also a distinction, as I mentioned earlier, between the on-site emergency plan which was provided by Southern, and the off-site emergency plans which include the state and county emergency plans, but there are also plans that are associated with the private support agencies such as hospitals, ambulances and such that would be available to support any emergency response at the site, if needed. And also the federal agencies have their plans in support of an accident at a nuclear power reactor.

Slide 5. Slide 5 is just a listing of the specific emergency plans that were submitted. I've covered some of this information. What's unique here is the last two bullets in that you addressed earlier in your question to Southern the Savannah River Site. What's unique about the ten-mile EPZ, the Emergency Planning Zone, is that on the South Carolina side, the EPZ is almost entirely covered by the Savannah River Site. That's quite unique.

But in this case, there is a relationship in support of the existing Vogtle Units 1 and 2 with the Department of Energy in which there is a Memorandum of Agreement between DOE and Southern which lays out how emergency response would proceed in the

event of an accident at either the Vogtle site or at the Savannah River Site. In essence, the Department of Energy at the Savannah River Site would take full responsibility for emergency response and protection of their people on the site. It's a controlled site. The staff did not review the emergency plans that DOE has for that site. It's not within the scope of our review, our guidance. However, we did review the Memorandum of Agreement. We were satisfied that it adequately represented the existing agreement between the two, between DOE and the Savannah River Site and Southern. And according to our Standard Review Plan, where an applicant at an existing site incorporates by reference and utilizes the existing features associated with an emergency plan into the application, there is a presumption of adequacy of those aspects of the incorporated emergency plan and hence the NRC doesn't need to look at it in detail. This was an example of that.

Yes, sir.

JUDGE TRIKOUROS: You said that you do not review the Savannah River emergency plan.

MR. MUSICO: That's correct.

JUDGE TRIKOUROS: Therefore, how would you know that -- if there's an evacuation called for in

the Savannah River program that that evacuation doesn't bump right into and conflict with the evacuation of Vogtle?

MR. MUSICO: That's an interesting question. And first of all, the review of the DOE plan, whatever plan they have is not within the scope of the NRC's guidance or regulations. This is a separate federal agency and whatever plans they have in place don't fall under the scope of the NRC's requirements for emergency planning or evacuation.

The extent to which the staff reviewed the arrangements that they have was merely to review the Memorandum of Agreement which was included in the application by Southern and I would refer you to that to look at the level of detail that DOE identified the extent to which they would take care of protection of the people on site, the evacuation. They addressed the communication, coordination with the Vogtle site. So it addresses some of the major aspects of emergency response and coordination, primarily coordination.

So I think the short answer to your question is that the coordination would be worked out in the communications that they have set up pursuant to their Memorandum of Agreement.

Slide 6, please.

Slide 6 and 7 merely list the 16 planning standards that the staff uses to evaluate the adequacy of the emergency plans and what FEMA uses to evaluate the adequacy of the emergency plans, except for the second, number two. FEMA utilizes 15 of the 16 planning standards. These are the 16 standards that are included in 10 CFR 50.47(b) and they're also the 16 planning standards that are in NUREG 0654/FEMA-REP-1. And they essentially speak for themselves with respect to the areas that we address.

These planning standards were formulated shortly after the Three Mile Island accident. And the intent was to address all of the problem areas, most if not all, of the problem areas that were encountered as a result of the NRC's response to the Three Mile Island accident. I was around at that time and I became involved in emergency planning shortly thereafter. I never realized it would become a career, but this was, in essence, the final version of the major elements or key elements of emergency planning that is still in effect to this day with respect to the staff's and FEMA review of the adequacy of emergency plans.

NUREG 0654, that was developed I think it was 1980 is when it was developed and it's just a

testament to the adequacy and the comprehensiveness of the document in that it's still used today. Now, there are peripheral guidance documents and additional requirements that have been put in place that essentially build on these core planning standards to facilitate the staff's review. So the staff looks at, for example, for a greenfield site, the staff would look at other aspects of emergency planning that would be associated with all of these 16 planning standards. So this is the foundation, the key elements associated with the emergency plan.

And Slide 7 just lists the remaining eight.

Slide 8, as I said earlier, the NRC reviews the on-site plans. FEMA reviews the off-site plans. The standard of review which is included in 10 CFR 50.47(a) is primarily the same for the NRC as it is for FEMA. In short, the NRC and FEMA determines whether the emergency plans are adequate and is there reasonable assurance that they can be implemented. Reasonable assurance that they can be implemented. The NRC does its independent review of the on-site plans and comes to that conclusion.

FEMA does their independent review of the off-site plans and comes to their conclusion. They

submit their findings and determinations to the NRC on the adequacy of the off-site plans. We review FEMA's findings and then we take that into consideration and we come up with at the bottom of Slide 8, a final finding of reasonable assurance on the complete and integrated emergency plan which is a little bit different in that we find, we make a finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. And that's the basic finding that the NRC comes down with that encompasses both the on-site and off-site plans.

Now, in the concept of the Part 52 licensing process, this reasonable assurance finding of complete and integrated plans includes the successful completion of ITAAC and also in the case of the Vogtle ESP application the resolution of the permit conditions which we'll get into shortly.

Slide 9. This slide just lists the various facilities that are associated onsite and offsite. The facilities are basically common in nature, except for the control room onsite, but in this case we're going from Units 3 and 4, we're going to have a common Technical Support Center, TSC. The OSC, we're going to have separate OSCs for Unit 3 and

4 because the OSC is going to be where the TSC was going to be in the certified design for the AP 1000. We'll get into that in a minute.

And then offsite, we have the Emergency Operation Facility, EOF. We have state and county EOCs. The NRC has an Atlanta office. It has the headquarters incident response center where I respond to from time to time in support of drills. And that's up on the fourth floor in our Two White Flint building and then other federal agencies have their own emergency response facilities that would be activated in support of an accident at a commercial nuclear power station.

Slide 10. This slide shows common emergency planning features that would be common for all four units at the Vogtle site, Units 1 through 4. The site will have, eventually have a common on-site emergency plan for the Vogtle Electric Generating Plant. The application that was submitted, the emergency plan that was submitted in the application was an emergency plan and Mr. Amundson, correct me if I'm wrong, was an emergency plan that addressed Units 1 through 4.

The scope of the staff's review was limited to Vogtle Unit 3 and 4. So the staff reviewed

the application and the concept of the proposed emergency plan as it relates and supports Units 3 and 4.

Now, the proposed emergency plan did distinguish between Units 1 and 2 and 3 and 4 through the use of an annex that Mr. Amundson discussed earlier to differentiate some of the specifics associated with Unit 1 and 2, versus Unit 3 and 4, given that they're different designs.

There is a common feature associated with off-site plans in that the state and county emergency plans are basically the same. In essence, there is no change to the off-site emergency planning associated with adding two additional units to the site. There will be minor details associated with possibly the implementing procedures, some of the EALs on notification. For example, if the site has an incident where there's a contaminated and injured individual at Unit 3, if they request off-site assistance from the ambulance company, they have to have a notification form. They have to tell the ambulance company to go to Unit 3, not Unit 1 or 2. So that's a minor detail. That's procedure-level detail and we don't look at that at this stage. But the short answer is there is virtually no change

with respect to the off-site emergency plans in support of adding additional units to an existing plant.

We have a common TSC, EOF. The 10- and 50-mile emergency planning zones are unchanged in support of the site and the evacuation time estimate which is associated with the 10-mile EPZ is also unchanged.

Slide 11. This slide -- I'll just briefly discuss the evacuation time estimate. It's important to understand what the significance of the ETE is and I address this partially in response to the Board's questions that we had earlier, but I think it warrants repeating is that the purpose of an ETE in emergency planning is to provide a representative time frame for evacuation so that emergency officials can incorporate input on evacuation characteristics and traffic flows at the time of an actual emergency and make well-informed, realistic decision about protective action options.

Now there's a lot there, but in essence, when the licensee has an accident and makes protective action recommendations offsite, whether or not they recommend sheltering or evacuation, the licensee doesn't determine whether that will happen. The

licensee makes a recommendation. The responsibility for deciding what protective action recommendations are going to be implemented for the people surrounding the site lie with the off-site authorities, primarily with the state entities, the state governments, in some cases, the governor. But the decision would be made not onsite. It will be made offsite.

Now that decision must be informed in taking into consideration the specific characteristics of the areas surrounding the site, primarily the 10-mile emergency planning zone. Hence, the importance of the evacuation time estimate because that identifies whether there are impediments to evacuation, whether there are certain features offsite that would impact a decision by the offsite authorities whether or not they seek shelter or evacuate. So the ETE serves as an information source to provide a fully-informed basis for the off-site authorities to make a fully-informed decision on whether or not sheltering or evacuation is appropriate, given the time associated with the accident, the projected or expected time that a release may occur that the off-site authorities would get from the applicant, and given many factors, the state authorities would decide whether it's

appropriate to shelter or evacuate, but ETE is an integral factor in that decision, that evaluation by the off-site authorities. Hence, the importance of the ETE.

Yes, sir?

JUDGE TRIKOUROS: The multi-unit site situation, is there a consideration for -- let me rephrase that. Is the assumption that there will be one unit affected at a time?

MR. AMUNDSON: That's kind of a yes and no answer. If you're assuming a malfunction, for example, reactor coolant leak, the assumption is that that only occurs in one unit at a time. However, there are certain natural phenomena, for an example, high winds that would affect the entire site. In that case, it really is affecting all sites at the same time. But regardless, regardless of whether it's affecting one unit or more than one unit, it is still a site-classification and it's still a site-level response to the emergency.

JUDGE TRIKOUROS: So if there were a common mode event, it could be weather, it could be, I don't know, a spill of a tank of something toxic. It could be a terrorist attack, something that affects more than one unit. Are the facilities designed to

accommodate that? In other words, would there be -- would the TSC operations be able to handle that without everybody bumping into each other and everything getting confused?

MR. AMUNDSON: Yes, the design of TSC is designed to handle an accident on more than one unit at a time. For an example, you could have something going on in Unit 1 and something else going on in Unit 4. And the TSC is designed to handle that situation. As is the EOF in Birmingham. In fact, that was demonstrated as part of the EOF approval process for the centralized EOF facility.

MR. MUSICO: If I can just follow up on that. If there was an incident at more than one unit, whether it's the same incident or two separate incidents. A classification of one of the four emergency classes which are unusual event, alert, site-area emergency, or general emergency, each unit would classify the emergency. If one unit classified the emergency at a higher level, that would be the response level to activate the emergency organization.

If there was common-mode failure that affected the whole site, the response would be similar, whatever the worst case is. The short answer to your question is the response would primarily be on

a case-by-case basis. It would be dependent upon what the details are of the incident. And part of the response would be based on the emergency action levels that would be developed in support of the units that would ideally address all possible accidents. The NRC does look at various design basis accidents with respect to the reasonableness of accidents that we expect them to be able to respond to. But again, if we had an unusual situation where two units were experiencing different accidents, the worst case accident would drive the emergency response.

But the coordination of the units would be there to ensure that the response by one unit or the other or coordination or information exchanges with the unaffected units, there would be a coordinated communication link and that coordination would be at the TSC. Initially, before activation of the TSC and this is my understanding because I went back and checked this after I responded to some of your questions, is that, as I recall, the emergency plan says prior to activation of the TSC, the security department would notify the unaffected units that there is a problem at the affected units.

Now there are communication capabilities among the units so it's possible that the shift

supervisor in each unit may, in fact, notify one another. For example, an affected unit, and I'm speculating now and help me out if you need to by Southern, that the affected unit, if they're experiencing an accident, may have somebody in that control room prior to activation of the TSC notify the other control rooms to let them know they're having a problem or they're aware of it..

MR. AMUNDSON: The emergency plan doesn't address the specifics of how we communicate between units. Some of that level of detail will be worked out in our implementing procedures. And those procedures have not all yet been written and we haven't really decided how we're going to do that. But I will say this, that we are aware of best practices, if you will in the rest of the industry. We have done benchmarking at other multiple-unit sites and we understand how they make decisions, how they communicate between units and we're looking to at least potentially include those provisions into our implementing procedures. That's kind of our process. We always look at operating experience before we go ahead and implement procedures. So there's some level of detail here, that's yet to be worked out.

JUDGE TRIKOUROS: the question that was

asked earlier was in regards to what the emergency response organization looks like at the beginning of an accident, say before the TSC gets activated. And you had indicated that -- let's say it would be possibly the shift supervisor might become the emergency response director, somebody in the operations management chain there would become the emergency response director.

If there are two units affected, is this part of the plan regarding who becomes the emergency response director? Is it the first event to occur or is it the highest order of event to occur? So if there's an unusual event and the site emergency declared, is the site emergency plant become the emergency response director?

MR. AMUNDSON: Again, probably the most -- from a probability perspective, some kind of external phenomenon, as you mentioned, perhaps toxic gas. It could be high winds, whatever the case might be that potentially affects all four units. Again, you haven't worked out the detail in the procedures, but my experience from other sites that have more than one unit is that you -- in your procedures, you designate one of the shift managers that are onsite as the lead for site events. It might very well be the Unit 1,

Unit 2 shift manager or shift supervisor, becomes the lead for the site. And they are the ones that make the decision for site level events.

Again, in the industry, if you should have that event that occurs on one unit and for some reason there's a simultaneous event on another unit that's of an accident of a malfunction nature, those procedures typically have the affected shift manager make a classification and then confer with the other shift managers, if there's multiple shift managers on site and determine that there's no other event going on on another unit that would lead to a different or a higher classification.

JUDGE TRIKOUROS: So on a big picture basis which is really we're here to look at it from that perspective, this multi-unit site emergency plan does consider multi-unit effects. That's really what this is all about.

MR. AMUNDSON: Well, in a general sense, it does, yes. That's the way that works, particularly for those external events. That's included in the external event. An external event, again, natural phenomena such as high winds would impact all four units and you would have one classification for the site.

JUDGE TRIKOUROS: And the staff, do you agree with that, that you are considering multi-unit events?

MR. MUSICO: Yes, the staff agrees with that. The level of detail that Mr. Amundson is speaking to is procedural level. The staff has not reviewed the procedures yet. The procedures are not required to be submitted until 180 days prior to fuel load. We have an ITAAC for that.

Now to respond more directly to your question with respect to the staffing on site, there is guidance that the NRC has in, again, our primary guidance document, NUREG 0654/FEMA-REP-1 in Table B1. It's entitled "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies." And this identifies major functional areas, locations, major tasks, position, title, or expertise, the number of staff on shift, capabilities for additional staff, 30 minutes and 60 minutes. That's referred to as staff augmentation.

This table is site focused. And in the case of Vogtle, they provided a comparable table of staffing for the site that reflected Units 1 through 4 and which was consistent with Table B1. And we had a chance to ask some RAIs, Requests for Additional

Information, to ensure that they satisfied the intent of Table B1 which again is focused from a site perspective, but it still must reflect individual units that are on the site. So there is guidance with respect to the number of staff that's required on a multi-unit site that the staff looks at.

The adequacy of that as it would be reflected in the implementing procedures is not within the scope of the staff's review at this time. The staff again would receive the implementing procedures 180 days prior to fuel load and for which we have an ITAAC for and the adequacy of those procedures and the staffing associated with that would be demonstrated during an exercise to demonstrate the emergency plan for which there is also an ITAAC.

JUDGE TRIKOUROS: Thank you.

MR. MUSICO: Moving right along, at the bottom of Slide 11, just to wrap this up, the evacuation time estimate that was submitted with the application, actually, the staff was somewhat surprised in that the ETE, evacuation time estimate, was updated to support the application. There's no requirement for an applicant to update the ETE in support of the application as part of Part 52. There's other criteria with respect to changes

offsite, but we were pleasantly surprised when we saw that the applicant did update the evacuation time estimate.

The NRC reviewed the ETE with the assistance of PNNL, Pacific Northwest National Laboratory, staff, and the outcome after request for additional information was that the updated ETE in support of the emergency plan was adequate. And it was subsequently shared with the off-site authorities to make sure the results of that updated ETE were reflected in the off-site plans to ensure they recommend the appropriate protective action recommendations.

Slide 12. Slide 12, the staff identified seven permit conditions associated with the application. This slide is quite busy, but it's important in that it essentially identifies two areas of permit conditions. One area deals with the possible future inconsistencies associated with the Emergency Action Levels. The second area deals with the TSC location.

The permit conditions address those aspects of the emergency plan that may be impacted by ongoing licensing actions within the NRC currently. First of all, with respect to the EALs, we have permit

conditions 2 and 3. The 2 and 3 designation just corresponds to Unit 3 and 4. And the same for 4; 5, 6, and 7. Two and three addresses the Emergency Action Levels associated with NEI 07-01. The NRC is currently reviewing NEI 07-01 which is a generic revision, a generic version of EALs associated with passive reactors, basically addressing the AP 1000 certified design, the AP 1000 design, and the ESBWR design.

So the EALs associated with the AP 1000 are not yet complete from a generic standpoint as reflected in NEI 07-01. The application that Southern submitted refers to the EALs that will be finalized and reflected in NEI 07-01. But the staff has not yet finished its review of that document. Hence, we don't know what the final EALs are. So we needed permit conditions to reflect the unfinished nature of our review of those EALs and defer the review of the EALs to the COL stage. This was probably the most problematic aspect of the staff's review. The staff was faced with a new licensing process under Part 52, but what further complicated the review and the staff did its best to accommodate these moving pieces with respect to the endorsement, the on-going endorsement review of NEI 07-01 through utilizing permit

conditions.

Similar to that, the EALs are also impacted by the design of the AP 1000 itself, not just the NEI 07-01, but the final outcome of the certified design. Well, the staff's review was further complicated in that Westinghouse has submitted amendments to the AP 1000 certified design which were reflected in the applicant's application.

Now as you're aware, and you asked for clarification a little earlier, Judge Trikouros, with respect to Rev. 17 and Rev. 16, this is where it got rather interesting in that the certified design for the AP 1000, as is reflected in Appendix D to Part 52, reflects Revision 15 of the AP 1000 design. Westinghouse came in and chose to propose amendments to that certified design through -- in Rev. 16 which was supplemented by Technical Report 134. Together, they eventually comprised Revision 17.

The NRC is currently reviewing these amendments to the certified design in the context of a rulemaking proceeding. Well, part of that rulemaking proceeding which is proposed by Westinghouse in the amendments to the certified design, is to change the characteristics of the TSC location in the AP 1000. So this is where it got rather challenging to the

staff in that the application that Southern submitted identified a TSC location that presumed that the TSC location in the AP 1000 certified design was a Tier 2-Star, had a Tier 2-Star characterization. We'll get into that a little bit later. It's quite complicated. But the distinction is that in the current certified design, the TSC location is identified as a Tier 1 ITAAC which means that if an applicant comes in and they want to deviate from the TSC location that's in the certified design, they would have to submit an exemption request as part of their application.

If the TSC location is characterized as a Tier 2-Star, however, which is Westinghouse -- which is the intent of Westinghouse, then an exemption request would not be necessary. They would merely have to -- the COL or ESP applicant for a complete integrated emergency plan, if they wanted to deviate from the TSC location in the certified design, would merely have to ask for prior NRC approval.

So that's the distinction between the current certified design which is a Tier 1-Star ITAAC at the TSC location and eventually, if approved, will be the TSC will be characterized as a Tier 2-Star designation.

Now what makes it even more interesting is

that it's characterized as a Tier 2-Star designation, but it's identified as being located in what they now refer to as the Control Support area in the certified design. So essentially we have a moving target here and the staff review, and there are some slides later which I'll quickly go through, the staff reviewed the applicant's request to have a common TSC. The common TSC deviated from the current location of the TSC as a Tier 1 ITAAC, assuming that it will eventually be a Tier 2-Star designation, but the certified design is not really part of an ESP application.

This is where it got rather challenging to the staff and to address that aspect of the application in that in a COL application, the COL applicant can incorporate by reference the certified design, whatever it may be. In an ESP, the ESP does not provide for the incorporation of a certified design. So the certified design itself could not be incorporated into the ESP review that the staff conducted. However, the ESP application identified the TSC location in the AP 1000 design.

Now the reason for this, and this is part of the shake out of the Part 52 licensing process, is that the allowance of an ESP application under our rules to allow an applicant to come in with a complete

and integrated emergency plan. Well, a complete and integrated emergency plan isn't just a description of the plan. The emergency plan includes aspects of the physical designs associated in support of that. So this is a difficult area where when the designers of the ESP rule said that an applicant could come in at the ESP stage with a complete and integrated emergency plan, did not directly address on point the extent to which the hardware aspects of certified design could be considered, because the certified design is not part of the scope of an ESP review.

JUDGE TRIKOUROS: Let me interrupt you. And this is exactly where your response to our presubmitted questions was not satisfying. It was in exactly what you're talking about now. I understand that this is the first time that this is all happening, so there's bound to be confusion. But to say that the ESP does not require or is not associated with the DCD, I think is only true if it isn't. In other words, there are ESPs that have been submitted that are not associated with a particular design in which case. In fact, most ESPs are not submitted, referencing specific design. This plant is.

Now with respect to the emergency plan I don't imagine you could actually submit a complete and

integrated emergency plan without having a DCD that you're attached to. Because if nothing else, the EALs would be not specific. So there would be gaping holes, so to speak in the emergency plan.

So it just seems to me that the TSC, the situation that you're describing has to get resolved here, because you can't -- I don't think the answer is this ESP is not required to be attached to a DCD. I don't think that's an answer because it's obviously not the case. And all the logic, the circular logic that you've been going through is clearly indicating that. That if you make that assumption, you run into all sorts of illogical situations. So I don't know what the answer is here, but I don't think the answer is that you can separate the DCD from the ESP.

MR. MUSICO: Well, in the case of the other Early Site Permit applications, those came in with major features emergency plans, so that distinguishes it from this particular ESP application.

You make a very good point with respect to, for example, EALs as it relates to the design. The distinction between the two sets of permit conditions that we have here is that the reason you see a number of permit conditions associated with the EALs is that you're correct, the EALs are integral

with respect to the design itself, so we can't just not consider it at this stage. But that's why the EALs are very broad in nature in that what they do is represent what's essentially one of the 16 planning standards which constitute an essential element of planning for emergency response.

One of the 16 planning standards we can't address. We can't address, except to the extent to which the applicant identifies the four classifications. So there's a gaping hole there. So I agree with what you said with respect to you can't just disassociate the design. In the case of EALs, that's the case.

We are utilizing the tool of a permit condition here to facilitate a review at the COL stage to address the on-going review that the NRC is in with respect to its endorsement review of NEI 70-01 as well as the on-going rulemaking associated with AP 1000. It's a big deal. We agree. And if you look at permit condition 6 and 7, that's almost verbatim out of Appendix E to Part 50 which is applicable to EALs and this is basically the requirement for EALs in a nutshell in that the applicant eventually will have to submit a fully-developed set of EALs. And so it's very broad. So --

JUDGE TRIKOUROS: And I think the same argument applies to the TSC.

MR. MUSICO: Well, I was going to distinguish that. Not necessarily. In the concept of the TSC, the only thing that applies here with respect to the emergency plan as it relates to the design of the reactor itself, it's not included by ITAAC, okay, is the TSC location.

Now what the staff is able to do was to look at the proposed new location of the TSC. We looked at it and said okay, they want to have a separate common TSC. The applicant identified that this is a departure from what is currently the TSC location in the AP 1000 design. So we looked at it and considered a number of factors with respect to whether or not that would be acceptable.

Now we essentially analyzed those factors, which I'll get to shortly and determined a separate TSC was acceptable for a number of reasons that would eventually depart from the AP 1000 design and the way the application is written it assumes that all is necessary to depart from that design is prior NRC approval. It assumes that the TSC location is a Tier 2-Star.

Now that rulemaking isn't complete yet.

So we found it necessary to have a permit condition that will resolve any possible inconsistencies once the rulemaking is complete to ensure that the application is consistent with whatever outcome the rulemaking has. For example, if the rulemaking eventually approves a Tier 2-Star designation, then the COL applicant will have to address that and say that the application, the permit condition is satisfied and that the application requested prior NRC approval. The NRC approved it. It's consistent with the final resolution of the rulemaking. Hence, the TSC location is okay. No further action is necessary, except for the COL applicant to address that.

If, however, the outcome of the rulemaking associated with the TSC AP 1000 denies the Tier 2-Star designation and keeps it as a Tier 1 ITAAC, then the COL applicant would have to come in with an exemption request or departure associated with that because the application at the ESP stage is now inconsistent because it didn't submit an exemption request. So we thought about this quite a bit, realizing this is a complicated characteristic of a first of a kind review, subject to further complication giving these on-going licensing actions and this is what we decided was acceptable to the staff as far as reconciling any

future inconsistencies that result from final action on the TSC location as far as a rulemaking and as far as the EALs that would be associated with NEI 7-01 and final approval of the AP 1000 certified design, the form of which is a big deal because it is almost the entire planning standard associated with our review. So we recognize that that is a big deal. It's directly dependent upon the certified design, but we were faced with reconciling what our rules allow for ESP application for the submission of a complete and integrated emergency plan.

The staff did the best we could to accommodate these complicated aspects of the licensing process.

JUDGE BOLLWERK: That about wraps up Slide 12?

MR. MUSICO: Yes, sir. I think I can move along a little faster now, hopefully.

Slide 13. This slide merely discusses the purpose of the TSC. A lot of these will be familiar with anybody familiar with the TSC. I won't go through them, but it addresses what the TSC, the intent of the TSC is and many of these were taken directly from NUREG 0696 which is the applicable companion document to NUREG 0654-FEMA-REP-1. NUREG

0696 was written in 1981.

Slide 14. This deals with the TSC location and some of the requirements for the TSC, primarily the TSC needs to have the same radiological habitability as the control room. Again, that comes from NUREG 0696. We get into the two-minute walking time to facilitate face-to-face communications. Those come out of NUREG 0696 which was a 1981 document.

The staff looked closely at the reason, the key reasons for this two-minute walking time and the face-to-face communication. And this is directly from NUREG 0696. Because the staff knew it was an important issue and it was important to discuss the basis for the relaxation of this two-minute walking time, understanding that the staff's approval of a separate TSC farther than two minutes away is based on more factors than just the two-minute walking time. But with respect to the two-minute walking time, that was basically ingrained after Three Mile Island and has sort of been understood in the industry as well as the NRC as an important facet of emergency response in support of control room.

But in looking at 0696, NUREG 0696, if you peel it down, you'll see that there are basically two key reasons for the location of the TSC near the

control room. One has to do with communications. One has to do with data availability, under communications, to allow for the necessary management interaction and technical information exchange. With respect to data availability, to provide TSC access to control room data.

On Slide 15, this provides a little more detail associated with that. Getting back to the generic ITAAC that the staff developed, the staff considered the two-minute walking time and it's addressed in generic ITAAC 8.1.2 and the generic ITAAC table is included in Reg. Guide 1.206 as well as the Standard Review Plan, Section 14.3.10, in that industry -- the stakeholders specifically asked the staff at a public meeting whether or not advanced communication capability would be acceptable to relax the two-minute walking distance.

And the staff had considered it prior to that, but the staff also considered it at that time. The staff came up with the conclusion yes. And so what the staff -- for various reasons -- and what the staff did was next to ITAAC 8.1.2, generic ITAAC 8.1.2, the staff included a bracket next to that. That ITAAC deals with planning standard 8.0 emergency facilities and equipment. Under acceptance criteria,

the fourth column, acceptance criteria 8.1.2, it states that the TSC is close to the control room and the walking distance from the TSC to the control room does not exceed two minutes.

Well, we got that out of NUREG 0654 which referred us to 0696. So we incorporated the two-minute walking time into the ITAAC. However, we added to that a bracketed statement saying that, and I'll read it, "advanced communication capabilities may be used to satisfy the two-minute travel time." And the purpose of this was to afford a maximum amount of flexibility for the applicants, and that's consistent with many of the other acceptance criteria where we've identified acceptance criteria that's generic in nature, reflects the applicable guidance and requirements, but indicates that when the applicant comes in with specific ITAAC, they have flexibility to identify the details associated with the generic ITAAC to provide objective, clear and objective acceptance criteria on how they're going to meet that ITAAC. In this case, we included in the generic ITAAC that advanced communication capabilities may be used to satisfy the two-minute travel time.

Now with respect to the two-minute walking time, I said this before, there's no definition of how

fast you have to walk to cover two-minute time. So that in itself is ambiguous, but you can be reasonable with respect to how far two-minute walking time is. So we never really got into analyzing that. But the staff wanted to be reasonable, yet provide a maximum amount of flexibility to the applicants, given the constraints we have with respect to the applicable guidance and requirements. So that was input into the generic ITAAC.

Yes, sir?

JUDGE BOLLWERK: Quick question. You used the word travel time. You've also used the term walking time. I've also heard about a golf cart. Obviously, a golf cart can travel in two minutes a much longer distance than you can walk in two minutes. It's not advanced communication, but it is two-minutes travel time.

MR. MUSICO: Well, that's interesting, and I could probably come up with some interesting responses to that. But I think that's probably outside the scope of the walking time. That may be procedural in nature and Southern may want to --

JUDGE BOLLWERK: So travel time equals walking time, not just travel time? I didn't write this. You did. I'm just asking you.

MR. MUSICO: The intent at the time was the walking time. Travel was -- I put this in there.

JUDGE BOLLWERK: All I'm saying is you've introduced another term here.

MR. MUSICO: The concept of golf carts was never considered at the time that this was written. And again, it would depend on what kind of golf cart you have, whether it's fully charged, whether you're before the 19th hole. So these are considerations we didn't get into, but again, we wanted to be reasonable, whether it's walking time or travel time, the two minutes is a specific time frame and we wanted to give them flexibility with respect to satisfying that intent.

JUDGE BOLLWERK: Right, and the bottom line I guess is permit condition 8 which is at the bottom of the slide which basically says you're going to have to resolve this problem or this issue relative to the AP 1000 certified design versus the two-minute travel time versus the location of the TSC.

MR. MUSICO: That's correct. And that leads to Slide 16. I think I've discussed a lot of this in the context of the earlier slides. Slide 16 basically is how the TSC is reflected in the AP 1000 certified design. In the current AP 1000 design, as

well as how it's reflected in the proposed amendments which is part of the on-going AP 1000 DCD rulemaking.

JUDGE BOLLWERK: I take it if someone has a concern about whether there's a Tier 1 or Tier 2 designation, they need to get involved with the rulemaking, right?

MR. MUSICO: That's correct.

JUDGE BOLLWERK: This is where this is potentially going to get changed.

MR. MUSICO: Yes, that's correct. That's correct. Because the rulemaking, Westinghouse has specifically requested that the information designation of the Tier 1 ITAAC in the TSC location be changed to Tier 2-Star. That is specifically addressed in Technical Report 107, Westinghouse Technical Report 107 which is included under the broader umbrella Technical Report 134 of Westinghouse. So if you wanted to look at the details associated with the specific request, to change the tier designation of the TSC location, you would look at Technical Report 107 that was submitted by Westinghouse, as part of their rulemaking amendment request.

Slide 17. This slide merely shows the difference between Tier 1 and Tier 2. The definitions

of Tier 1 and Tier 2 are provided in Appendix D of 10 CFR Part 52. Again, they're rather complicated, but the distinction is primarily in Tier 1, the staff would -- the information, the Tier 1 information is approved and certified in comparison to a Tier 2-Star where it's a lower-level information which shows how the Tier 1 information is met. Tier 1 is a higher-level information. But the Tier 2-Star information is a lower level and is allowed to be changed or departed from with prior NRC approval.

Slide 18, earlier I discussed the two key reasons which were the foundation for the two-minute walking distance of the proximity of the TSC to the control room which are communication and data availability. This particular slide merely shows the various communication capabilities that exist at the site and have been proposed in support of Vogtle Units 3 and 4. And the staff looked closely at these capabilities and found that the various proposed communication capabilities, excuse me, in support of the proposed Units 3 and 4 are redundant, dedicated and diversified and certainly reflected an upgrade to the communication capabilities that were available around 1979, 1980 when the communication capabilities were initially identified in support of the two-minute

walking time. So this reflects some of the advancements since 1981.

Slide 19 gets into the second key factor associated with proximity of the TSC to the control room dealing with the data capabilities, specifically as it relates to the control room. And the first two are site-focused in that these are identified in the application as well as reflected in the Safety Evaluation Report in that you have the Protection and Monitoring System, the PMS. You have the Qualified Data Processing System, the QDPS, which is a subset of the PMS system. These systems are described in the staff's response to the Board's questions recently.

And then we have the two systems that are associated with the NRC, the Safety Parameter Display System, SPDS; and the Emergency Response Data Systems, or ERDS, as we refer to it as, which in fact, links to the PMS system as well as to the NRC. So this shows the multiple data capabilities that now exist which are improvements to the data capabilities that existed at the time of the Three Mile Island accident.

Slide 20 merely indicates, really describes what the Safety Parameter Display System is intended to do, the purpose of it.

Slide 21 identifies the ERDS system and

what that's all about.

Slide 22 and 23 are the heart of the considerations of the staff approving the common TSC location separate from the AP 1000 certified design. As you can see that the communication capabilities as it would be reflected in the two-minute walking time in the first bullet have advanced substantially since 1981, but that was only one of many, many factors that the staff looked at in considering the appropriateness of having a TSC that is located slightly further away and I'm not going to read through all of those, but I bring them to your attention because this was the first opportunity that the staff had to actually list all of the factors that the staff considered in regard to the appropriateness of having a common TSC. And while the staff has, in fact, approved the common TSC that is located further away, subject to final resolution of the rulemaking associated with the AP 1000 to ensure that the final outcome of that does not result in any inconsistencies with respect to the staff's approval in the context of the ESP application.

Of note, on Slide 23, you'll see the very last bullet and sub-bullet, is that this is not precedent setting with respect to having a TSC located

farther away than two minutes in that in 2007 the staff actually reviewed a request associated with the Clinton Power Station and I provide the ADAMS Accession Number here, which is a public document, approving a TSC location that was actually located approximately 15 minutes away from the control room.

So I suggest that you might want to look at that to see what considerations the staff had with respect to relaxation of the TSC. And this staff that reviewed the TSC location in the context of the Vogtle application looked at it and found that it was consistent with some of the factors that we considered in the context of the Vogtle ESP application.

JUDGE TRIKOUROS: Clinton is a single plant, right?

MR. MUSICO: That's correct. I'm not sure, but I was there on one occasion and I went to the -- I believe they may have relocated it to their visitor center. I'm not sure on that. All I know is I tried to go to the visitor center and it was closed. You can't get there. So I seem to recall it may be in the SER that was written and their request and this ADAMS number, but I think that may be where they relocated it. If that's the case, that I couldn't reach, it's located some distance away from the

reactor itself.

Slide 24, in conclusion, the staff has reviewed the first of a kind, complete and integrated emergency plan that's been submitted as part of the Part 52 licensing process. The plan incorporated all elements of the onsite as well as the offsite, state and county emergency plans.

The third bullet, this is a first example of EP ITAAC. What I included here is a verbatim excerpt from the Energy Policy Act of 1992 which actually calls out emergency planning in the context of ITAAC. I'll let you read that yourself, but this begs the question that well, they're identifying including those applicable to emergency planning ITAAC within a combined license application. We're dealing here with an ESP application. Well, the short answer is that the ITAAC and this addresses an earlier discussion we had in that the ITAAC that is identified and approved in the context of an ESP for a complete and integrated emergency plan would be approved at that time, but at the COL stage, those ITAAC, if not met by the COL applicant, would merely carry forward into the COL application.

The staff has identified seven EP permit conditions regarding the EALs, Emergency Action Levels

and the TSC location. And finally, the NRC and FEMA findings subject to the permit conditions in the ITAAC have found that the on-site and off-site plans are adequate and that there is reasonable assurance that they can be implemented and the final conclusion, the finding by the staff which is pursuant to 10 CFR 50.47(a) is that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, subject of course, to the permit conditions and the ITAAC.

JUDGE BOLLWERK: All right, does that wrap it up, I believe?

MR. MUSICO: That's it. Thank you.

JUDGE BOLLWERK: Let me check and see if there's any questions from either of the Judges at this point?

Anything that the applicant's witness would like to say relative to anything we've heard? All right.

All right, at this point I think we've finished with the subject of emergency planning. Gentlemen, we appreciate very much your efforts and your information you provided to the Board. You've been very thorough. And we thank you for your service to the Board and all the information that you've

provided. Thank you again.

At this point we're going to take about a -- it's about 4:35. Let's take a ten-minute break and we'll come back and decide -- let's take a five-minute break, actually, and we'll come back and decide what we're going to do in terms of scheduling. I want to talk with the other Board Members. It's possible -- do you think, for instance, the first one of the presentations that you all -- number eight, on severe accident design mitigation, do you think 15 minutes is a fairly accurate --

MR. MOULDING: We do, Your Honor.

JUDGE BOLLWERK: Okay, and what about the second one which is also I think 15 minutes?

MR. MOULDING: I think that's still our reasonable estimate as well.

JUDGE BOLLWERK: All right, I'm not saying we're going to go here, but what about 10 and what about 11?

MR. ARAGUAS: I think for 10 we've covered 7 out of the 9 permit conditions, so we could probably move through that pretty quickly.

JUDGE BOLLWERK: And then what about 11 which is design certification revisions. Maybe we ought to hold that one out, in any event, because we

have -- when do you all intend to talk about the aircraft crash rule?

MR. MOULDING: I believe that would be in the context of the AP 1000.

JUDGE BOLLWERK: Of the AP 1000. That may be one we want to potentially hold -- okay, thank you for that information. Let's take a five-minute break and we'll come back and talk about further scheduling here.

(Whereupon, the above-entitled matter went off the record at 4:35 p.m. and resumed at 4:43 p.m.)

JUDGE BOLLWERK: We need to go back on the record, please. We're back from our break and after a brief discussion among the Board Members what we decided to do is to move staff presentations 9 and 10 forward into this time slot and try to deal with those first. Then we'll see where we go with respect to eight and 11 after we finish with those and check the time. So if you've got staff presentation time, the panel is ready, we appreciate it. Thank you.

MR. MOULDING: Thank you, Your Honor. Let me introduce our witnesses for presentation 9. From the Board's left we have Mr. Christian Araguas, Mr. Mark Notich, and with the Board's permission, we'd also like to have Michael Smith return in case the

Board has any questions related to the environmental portion of this presentation.

JUDGE BOLLWERK: All right, if there's no objection from the applicant I take it, for the additional witness? Thank you, no. All right, then we'll move forward with that.

Let's see, I think everyone at this point has been sworn. Gentlemen, I would remind you, however, you remain under oath and you need to answer the questions with that in mind.

All right, should we do -- we have a presentation to put in?

MR. MOULDING: We would at this point like to introduce Exhibit NRC000067, staff presentation 9, deferrals to COL safety and environmental reviews.

JUDGE BOLLWERK: Let the record reflect that Staff Exhibit NRC000067 has been marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit NRC000067-MA-BD01 for identification.)

MR. MOULDING: I believe that the CVs of each of these witnesses has already been admitted into evidence, so at this point we would just move NRC000067 be admitted.

JUDGE BOLLWERK: Any objection? Hearing none then the NRC Staff Exhibit NRC000067 is admitted into evidence.

(The document, having been marked previously for identification as Exhibit NRC000067-MA-BD01, was received in evidence.)

JUDGE BOLLWERK: All right, which one of you gentlemen is going to start? All right.

MR. NOTICH: Good afternoon. My name is Mark Notich and I'm the staff's Environmental Project Manager for the environmental review of the Plant Vogtle Early Site Permit application. The Board requested a presentation that identifies and reviews the reasons why any subject matter area, particularly the radioactive waste management system described in Section 3.2.3 of the final EIS and has been deferred to the COL stage.

MR. MOULDING: May I briefly interrupt for a moment. Could you bring up NRC000067, please?

MR. NOTICH: Along the lines of all my colleagues here, I'd like to give you a brief background on myself. I have a Bachelor's degree in agricultural chemistry. I have over 30 years of experience doing environmental analysis, environmental management activities, and environmental impact

assessments. For the past 15 years I've been managing or supporting the development of several NEPA documents for the Departments of Energy, Transportation, and Defense. And since February of 2006, I have been the staff's environmental project manager for the Plant Vogtle ESP.

Next slide, please.

JUDGE BOLLWERK: We need to switch to Slide 10. There you go.

MR. NOTICH: Thank you very much. The environmental review performed by the staff encompasses all subject matter areas necessary for the ESP application and no other required review has been deferred to the combined license stage.

However, FEIS Section 3.2.3 does state that the analysis of the radioactive waste management system has been deferred to the combined license stage.

The staff conducted its Early Site Permit analysis and reached impact conclusions concerning liquid and gaseous releases as shown in Sections 4.9 and 5.9 of the Final Environmental Impact Statement. Specifically pages 4-67 and 4-68 of the Final EIS state that the sources of radiation exposure to construction workers include direct radiation

exposure, exposure from liquid, liquid radioactive waste discharges, and exposure from radioactive effluents from Vogtle Units 1 and 2.

The applicant, in its ER, also identified proposed Vogtle Unit 3 as a source of direct radiation to proposed Unit 4 construction workers. The dose information from these sources was reviewed by the staff and found to be within NRC annual exposure limits.

Page 5-67 of the Final EIS states that the dose to the maximally exposed individual and the population living within an 80 kilometer radius is from both the liquid and gaseous effluents pathways and which would include liquid and gaseous effluents from radioactive waste management systems for Vogtle Units 3 and 4.

Page 5-72 of the Final EIS states that the occupational exposures from the units would likely be bound by occupational exposures currently operating light water reactor and that advanced light water reactor design such as the AP 1000 would incorporate improved radiation protection features.

The staff concluded that the health impacts to the public and site workers from construction and operation of all facilities

associated with Vogtle Unites 3 and 4 would be small.

In Section 3.4.3 the staff only intended to indicate that the final design information may change at the combined license stage and this may constitute new and significant information for the combined license environmental review.

JUDGE TRIKOUROS: Just backing up to your first bullet there, you say the environmental review encompasses all subject matter areas necessary for the ESP application and no required review has been deferred. There's always been some real confusion regarding what is absolutely required at the ESP stage.

Could you enlighten me on that?

MR. SMITH: This is Michael Smith. If I could ask for you to clarify. Are you speaking in general terms or specific to the waste management system?

JUDGE TRIKOUROS: Different applications have deferred different things. Questions have come up about what absolutely has to be included in the ESP. What items do you absolutely require to be reviewed at the ESP stage? Is there an answer to that question or is the answer -- there is no such subset of things?

MR. SMITH: My first answer would be that NUREG-1555 environmental safety review plan and it lays out specific guidance for ESP reviews and COL reviews. With that, when you get into the specifics of a review, not speaking specifically to this waste management, but in general, you find there's a lot of gray areas on the information that's provided, that's available, or is even appropriate to be available in this early stage in the review process. But generally speaking, we start with the guidance in the ESRP.

JUDGE TRIKOUROS: Thank you.

MR. SMITH: You're welcome.

JUDGE BOLLWERK: Any questions from Board Members on the waste issue here?

Let me make sure I understand it. With respect to the last bullet, I take it what you're saying here is that as could be the case with any new and significant information, if something changes, then you may well have to do something different at the COL stage?

MR. NOTICH: Yes, Judge.

JUDGE BOLLWERK: For instance, we heard I think last week that if something changed relative to the dredging matter that became new and significant information, that might need to be taken into account

of the COL.

MR. NOTICH: And that is correct.

JUDGE BOLLWERK: And this falls into the same category?

MR. NOTICH: Yes, sir.

JUDGE BOLLWERK: Okay. Anything else anybody has?

Judge Jackson, you're looking --

JUDGE JACKSON: I guess your first two bullets are compatible and I'm sure you explained it, but maybe it was just late in the day. The first one said basically you didn't defer anything, right?

MR. NOTICH: Yes, Your Honor.

JUDGE JACKSON: And the second one said you deferred something.

MR. NOTICH: In the final EIS, our language could be read that way. We could have stated that a lot clearer with our intentions than what is currently in the FEIS.

JUDGE JACKSON: So would that second bullet then be an exception, maybe?

MR. NOTICH: Exception? Again, we could have stated that a lot better.

JUDGE JACKSON: But in any case, the COL stage, that will be looked at, so however it's stated,

that's the reality of it, the second.

MR. NOTICH: Yes, sir.

JUDGE TRIKOUROS: Do you anticipate that it's going to change? Is that what this is about?

MR. NOTICH: The FEIS is based on Rev. 15. Rev. 17 is now in-house. I wouldn't want to speculate about what number rev. we're going to be on when the final Supplemental EIS of the COLA is developed.

JUDGE BOLLWERK: Can I just turn to applicant counsel one second and ask for a clarification or additional information, I guess. At the last pre-hearing conference we had in January, I believe, you all indicated that it was possible that you all would be adopting, relative to the COL process, Rev. 16 or Rev. 17 within the March-April time frame. Is that still your intention?

MR. BLANTON: I need to check behind me, but I think I heard since that prehearing that it might have slipped until May, but we're still talking about the same general time frame.

(Pause.)

I'm told that date is now the end of May.

JUDGE BOLLWERK: Thank you, sir. Anything further from either of the Board Members?

I guess we'll turn to the safety side of

this.

JUDGE JACKSON: Just this tap and talk, I keep thinking I'm in a Fellini movie or something.

JUDGE BOLLWERK: That will work. Are we okay? Let's go ahead and hear the safety presentation and we probably need to go to Slide 3 probably? Yes.

MR. ARAGUAS: Yes, that's fine. Okay, so the first slide we have here I just want to point out that the staff determined that all the requirements applicable to the requested Early Site Permit and Limited Work Authorization have been met subject to the permit conditions and ITAAC, similar to Mark's comment on the environmental side.

For safety, no review required for the ESP or LWA has been deferred to the COL stage.

Next slide.

So I wanted to start off with just defining quickly what a COL action item is and then we'll go into each of the COL actions that were imposed by the staff in the FSER.

So let me quickly just read the definition. "COL action items identify certain matters that shall be addressed in the FSAR by an applicant for a CP or COL who submits an application referencing the Vogtle ESP. These items constitute

information requirements which is the key aspect of those definitions. They are information requirements, but do not form the only acceptable set of information in the FSAR. An applicant may depart from or omit these items provided that the departure or omissions identified and justified in the FSAR. In addition, these items do not relieve an applicant from any requirement in 10 CFR Parts 50 and 52 that governs the application. After issuance of a CP or COL, these items are not controlled by NRC requirements, unless such items are restated in the preliminary safety analysis report or FSAR respectively."

Next slide, Slide 5.

So now we start off with the first few COL action items.

JUDGE TRIKOUROS: I'm sorry, could you give an example of that last sentence, an example of that last sentence.

MR. ARAGUAS: As far as when they would be a captured FSAR, is that what you're referring to?

JUDGE TRIKOUROS: Yes, it's a rather confusing sentence to me. It says after issuance of a COL, they're not controlled. I don't understand. You're saying they're not controlled meaning --

MR. ARAGUAS: They're not carried forward

as part of issuance of a COL like a license condition.

JUDGE TRIKOUROS: But they've been taken care of, they've been --

MR. ARAGUAS: Correct. They have been closed out. That's correct.

JUDGE TRIKOUROS: So the FSAR would include the result of that?

MR. ARAGUAS: Right, and so I think the point here is that to the extent that they're not and maybe there's an issue that's carried forward that necessitates some sort of condition or something like that it would carry forward in the FSAR.

JUDGE TRIKOUROS: It would carry forward.

MR. ARAGUAS: If it was unresolved.

JUDGE TRIKOUROS: So if it's not resolved, it is carried forward?

MR. ARAGUAS: The intent of the COL action item as I pointed out and that's why I wanted to highlight, it's an information requirement. It's not stating that there's necessarily an issue. It's just stating that there's something that needs to be looked at the COL stage.

If at that stage there's something that we determine needs some sort of condition, we're able to do that.

JUDGE TRIKOUROS: It's a rather confusing sentence.

JUDGE BOLLWERK: Let me just pursue this one more second. It says unless the items are restated in the preliminary safety analysis report or FSAR, respectively, restated by the applicant, correct? Because that's who does the FSAR or am I missing something? It's almost like the applicant can impose these items on themselves if they're restated in the FSAR. That's what was confusing me. I guess maybe -- can you explain that or give me a --

MR. ARAGUAS: I'll tell you what. Let me take an action and get back to you guys on clarifying that last sentence.

JUDGE BOLLWERK: One point I thought if it was the FSER, that would make -- but it's the FSAR which is the applicant's --

MR. MOULDING: Your Honor, maybe I can clarify. I think maybe what Mr. Araguas is getting at is depending upon how the applicant addresses a COL action item, if they do so by inserting additional information in the PSAR or the FSAR, that may resolve the action item. And if it's -- if the action item is resolved by including new information in the FSAR, that would remain part of the final licensing

document, the FSAR.

JUDGE BOLLWERK: All right.

MR. MOULDING: That's all I think that sentence was intended to say.

JUDGE BOLLWERK: All right. We're reading more into that sentence than we needed to, you're saying. Well, from my perspective the word "restated" is the one that's ambiguous. I guess it's sort of -- I think we understand enough. All right. Let's go on.

MR. ARAGUAS: We're on Slide 5 and going into the first set of COL action items. There were two identified in Section 2.2 which deals with site hazards. The first dealt with chemicals stored on site which is hydrazide and the COL action item was a COL or CP applicant should address the potential accidental release of hydrazide from on-site storage tanks that may have an impact on control room habitability for new units.

Since the ESP stage, we don't have a specific design or at least design information with respect to the control room. It's an evaluation that's done at the COL stage in which case we felt it was necessary to incorporate a COL action item for that.

JUDGE TRIKOUROS: Just again for my edification, that would be an analysis that would be required?

MR. ARAGUAS: That's correct.

JUDGE TRIKOUROS: And there would be some acceptance criteria for that analysis, right?

MR. ARAGUAS: That's correct.

JUDGE TRIKOUROS: And therefore, why isn't it an ITAAC, rather than a COL action item. Is there some nice way to describe the -- --

MR. ARAGUAS: I would say that this is a very -- well, there's a regulation that specifically governs this section which deals with control room habitability. So this is something that's already would get looked at at COL.

JUDGE TRIKOUROS: So if it's, for example, a section of the FSAR that wasn't completed because of lack of information at that stage, that would be a COL action item, but if it were some sort of a test --

MR. ARAGUAS: The intent of an ITAAC is more to demonstrate that your plant was built as you expected it to be built. And this isn't getting at that. This is saying that an evaluation was done and demonstrated that hydrazide exceeded a certain toxicity limit and may pose an impact on control room

habitability.

Now it's premature to state at this point that it would, because you don't know the design aspect of the control room which you would if you had certified design that was incorporated by reference. Now that's the point of the COL action item is that you have that information of the COL and that's the point, it requires further analysis and can be done at the COL stage.

JUDGE TRIKOUROS: I can understand your general statement regarding the difference, but sometimes I'll see COL action items that just don't quite fit. This one may be a bad example. And sometimes ITAAC seem to also not quite fit, but that's fine. I think I understand the big picture definition.

MR. ARAGUAS: I think the point is you don't need to have the control room built to be able to do this analysis.

The second action item states that the COL or CP applicant should identify the quantities of the chemicals that will be used for the proposed Units 3 and 4 and address their potential impact on control room habitability. This is somewhat similar to the previous COL action. There's information that is not

required at the ESP stage and therefore was not provided, but yet that analysis does need to be done and this is something that's looked at at the COL stage.

Next slide.

Okay, we have COL action item 2.3-1. This dealt with meteorology and the idea behind this COL action item sort of gets at the idea of what we actually have at the ESP stage. The applicant has based its application on the AP 1000, but really how the staff interprets that is it's a very narrowly-focused plant parameter envelope. We're not approving the AP 1000 at the ESP stage. We built it at that site. So similar to previous ESP reviews, well, let me restate that. The previous ESP reviews went with this plant parameter envelope and so there were specific site characteristics that were established dealing with an ultimate heat sink cooling tower.

Because the applicant has requested approval for the AP 1000, the AP 1000 does not rely on an ultimate heat sink cooling tower. It has a passive containment cooling system and so the staff didn't find it necessary to create site characteristics for something that's not going to be there. So this merely, this COL action item just merely gives that in

the event that there's some change at COL as far as the design which is not anticipated. The site characteristics would need to be reflected.

JUDGE JACKSON: It seems strange to me because it seems like it would be a lot of things that would impacted if Southern decided to build something besides an AP 1000. We've been talking about all the releases and a lot of things that feed into the safety and environmental calculations and make it seem like there would be a whole catalog of things. So I don't understand why you would pick out one thing and not the other 25 things we could list.

MR. ARAGUAS: I think because this gets at specific site characteristics that were developed for the previous ESPs where what you may be referring to is just separate reviews that aren't necessarily tied to a specific site characteristic.

I agree with you that if they did change the design, they'd have a lot more to worry about than this COL action item.

JUDGE BOLLWERK: Let me -- I guess I am at the same place you are. Why this and not other things? I don't -- can you try to restate the answer so maybe --

MR. ARAGUAS: Let me ask would you mind

restating your questions?

JUDGE BOLLWERK: Sure. I think the question is a fairly simple one. You pulled out one item that if they don't use an ultimate heat sink cooling tower, they use the design that requires an ultimate heat sink cooling tower, they'll need to identify appropriate meteorological site characteristics. You already said the AP 1000, or at least as I understand it, doesn't use that. There's a lot of things the AP 1000 doesn't use that other designs might use. Why this particular item and not other items?

MR. ARAGUAS: I think the reason why is as you say, there's a lot of things the AP 1000 doesn't use, but they don't necessitate or they're not tied to specifically a site characteristic.

This was a fall out --

JUDGE BOLLWERK: What's the site characteristic then? Maybe that's the question.

MR. ARAGUAS: What's a site characteristic?

JUDGE BOLLWERK: That makes this important enough to put in here?

MR. ARAGUAS: There's examples here. It's the maximum evaporation and drip loss and minimum

water cooling conditions and those were across the board identified for the previous ESPs. I think that's probably what led us to incorporating this.

JUDGE TRIKOUROS: I can understand you singling this out as being an ESP-stage issue. I mean there are temperature requirements on the AP 1000, but they're air temperature and possibly humidity limitations. I think they're both dry well and wet well. But in any event, there are no water temperature requirements because of the nature of this plant.

So if you did go to another design, you'd have to specify the maximum water temperature, for example. And you're saying that that's a key characteristic that you want to single out and there weren't any other major environmental characteristics. Is that where you're coming from on this?

MR. ARAGUAS: That's correct.

JUDGE TRIKOUROS: And there may be one or two others, but you haven't identified them necessarily.

MR. ARAGUAS: That's correct.

JUDGE TRIKOUROS: Okay.

JUDGE JACKSON: It just seems like because the other applications haven't specified a specific

certified design, this seems like an odd reason to modify carrying something forward because it was an issue in the others, but whatever. I'll quit picking at you.

JUDGE BOLLWERK: Slide 7, I guess.

MR. ARAGUAS: Slide 7, it's a COL action item. I don't think we covered this. It's part of the exhaustive hydrology presentations yesterday. The COL or CP applicant will need to confirm that no chelating agents will be commingled with radioactive waste liquids and that such agents will not be used to mitigate an accidental release.

Alternatively, the applicant should repeat the distribution coefficient experiments with chelating agents included and incorporate these newly determined distribution coefficients into the analysis and demonstrate that 10 CFR Part 20 of Appendix B, Table 2 is satisfied.

We can move on to Slide 8. And for the last COL action item, this was prompted out of a site visit. We came here and as part of a review of 13.6, the staff member noticed that there was a rail spur on site and noticed that it was not mentioned in the application which was fine and so the intent of this COL action item is to make sure at the COL stage that

this is captured as part of the security plan. The control measures exist for that rail spur.

And that concludes the presentation.

JUDGE BOLLWERK: Anything further out of the Board Members now? All right, thank you very much, gentlemen. We appreciate you taking the time to bring these items to our attention and we appreciate the information and your service to the Board. Thank you.

I think we have time, let's go ahead and try to do number 10, presentation 10. Do you want to go ahead and introduce the witness for presentation 10?

MR. MOULDING: This witness should be familiar to you as Mr. Christian Araguas. The presentation he'll be giving is staff presentation 10 which is Exhibit NRC000068. Staff Presentation 10 permit conditions.

JUDGE BOLLWERK: All right, let's go ahead and first of all note that you have been sworn previously. You in fact just testified in front of us, so obviously you remain under oath.

In terms of the presentation, let the record note that Exhibit NRC000068 is marked for identification.

(Whereupon, the above-referred to document was marked as Exhibit NRC000068-MA-BD01 for identification.)

MR. MOULDING: I move that the exhibit be moved into evidence, Your Honor.

JUDGE BOLLWERK: Any objection? There being none, then Exhibit NRC000068 is admitted into evidence.

(The document, having been marked previously for identification as Exhibit NRC000068-MA-BD01, was received in evidence.)

JUDGE BOLLWERK: Whenever you're ready.

MR. ARAGUAS: If we can flip to Slide 2. In similar fashion with the -- maybe it's Slide 3. In similar fashion with the COL action item presentation we'll start off with a definition of permit condition. The Commission's regulations at 10 CFR 52.24 require an ESP to specify any terms and conditions of the ESP the Commission deems appropriate. A permit condition is not needed when an existing NRC regulation requires a future regulatory review of a matter to ensure adequate safety during a design construction or inspection activities for a new plant.

Next slide.

This slide just highlights some examples

of when a permit condition is warranted. It first states that the staff's evaluation in the SER rests on the assumption that is not currently supported and which is practicable to support only after ESP issuance. The second is a site physical attribute is not acceptable for the design of systems, structures, and components important to safety and the third is the staff's evaluation depends on a future act.

Next slide.

So there are a total of nine permit conditions. I think we only need to focus on two of those because as I mentioned, seven of them were covered as part of the emergency planning presentation.

Having said that, the first permit condition deals with Section 2.5 of the ESP and it states that the ESP holder shall either remove and replace or shall improve the soils directly above the Blue Bluff Marl for soils under or adjacent to seismic Category 1 structures to eliminate any liquefaction potential.

The ESP application states that portions of the soil above the Blue Bluff Marl are susceptible to liquefaction. In order to support the applicant's proposed site characteristic that there is no

liquefaction potential at the VEGP ESP site, the applicant stated that it would need to remove the soil directly above the Blue Bluff Marl. Therefore, the staff was proposing a permit condition to ensure this future act occurs.

Next slide.

JUDGE TRIKOUROS: You can see how -- I can call that an ITAAC because it's assuring a construction adequacy in the sense, but --

MR. ARAGUAS: This again, it gets to the general preconstruction activities. You're talking about excavation.

JUDGE TRIKOUROS: Strictly speaking, it's not building construction in the sense -- but it is related to building construction in the sense that it's the foundation for the building.

MR. ARAGUAS: What I would argue that removing the soil is not pertinent to the foundation. And so that's while you'll see that with placement of the backfill which is safety related and coming up -- which formulates the foundation, there is ITAAC for that.

JUDGE TRIKOUROS: This is more than just removing the soil. This is assuring that whatever replaces the soil meets certain conditions for

preventing liquefaction. I don't want to pursue this too much further, but when I see something like that I just want to try and understand these distinctions because sometimes they're not clear.

MR. BLANTON: Your Honor, excuse me, I think Mr. Araguas mentioned this, I think there are ITAAC for the engineered backfill.

JUDGE BOLLWERK: Yes, there is one. Maybe you can -- and this may be a good place. I don't think we talked about this particular ITAAC. Can you draw a distinction or --

MR. ARAGUAS: The ITAAC is discussed in the seismic presentation which will be covered tomorrow.

JUDGE TRIKOUROS: Yes, but it might be a good idea to just -- so you can have a permit condition that in this case is a permit condition in this case which is to prevent liquefaction in order to ensure that there is no liquefaction. There's an ITAAC that basically says that you will backfill with a material that -- and in a manner that will prevent liquefaction.

So it's almost as if there's an ITAAC on a permit condition.

MR. ARAGUAS: The ITAAC is more getting at

being a specific shear-wave velocity for example, and the ITAAC is -- you will place the backfill in a manner to achieve a specified shear-wave velocity.

JUDGE TRIKOUROS: Which is not a liquefaction issue. That's fine. Let's just go on.

MR. ARAGUAS: I think we can probably jump to the last slide which is Slide 10. This is permit condition 9. This deals with the Chapter 15 design basis accidents. I'll just quickly read the permit condition.

If a COL or CP application referencing this ESP also references a certified design. The COL or CP applicant may demonstrate compliance with the radiological consequence evaluation factors in 10 CFR 52.79(a)(1) or 10 CFR 50.34(a)(1) respectively by demonstrating that the site-specific chi over Q values determined in the ESP fall within those evaluated in the approval of the referenced certified design.

However, the COL or CP referencing this ESP does not reference a certified design, the applicant would still need to demonstrate that its source term is bounded by the source term values included in the ESP.

So the purpose of this condition is to allow a COL applicant referencing the ESP and a

certified design to rely on the radiological consequence evaluation approved in the certified design if the design certification chi over Q values are bounding, but to require a COL applicant that references a custom design to demonstrate that the source term values for the custom design are bounded by those included in the ESP.

JUDGE TRIKOUROS: Haven't they already done that? Is this one of those if you go with another type of plan?

MR. ARAGUAS: That's correct.

JUDGE BOLLWERK: I guess the question Judge Trikouros is asking is hasn't the COL application overcome this by events, more or less?

I mean it would make sense to have this in here if you didn't know what the COL application was going to say, but you have one docketed and it references the AP 1000.

MR. ARAGUAS: I think the intent of this permit condition was we have to incorporate the accident source term as part of the ESP and there's nothing that doesn't state that you have to show like everything else that you're bounded.

And so this was just merely put in to clarify that if you have a certified design, you don't

need to worry about comparing each of the individual source term with that that's imposed as part of the permit. Because if you recall in Appendix A and what the intent is, the source term are added in.

And like the site characteristics, a comparison is done to make sure that they are bounded. And so this was just to try and clarify that that's not necessary for a certified design.

JUDGE TRIKOUROS: Yes, I can understand the confusion. From a normal ESP there is no COL. There isn't always the question of what would the COL actually come in with and one has to cover that situation with permit conditions like these.

This particular case, it's already resolved. There is really nothing for anybody to do.

MR. ARAGUAS: That's absolutely correct. I guess the point I would make is you have to treat them as separate actions. You can't say well, we have a COL in and therefore this isn't necessitated.

JUDGE TRIKOUROS: Okay.

JUDGE JACKSON: We might quibble with the consistency, but at least it doesn't seem to hurt anything.

JUDGE BOLLWERK: I mean one way to word this would be to say if the COL application that's

been filed with the Agency has changed to be something else, then this would apply, but it doesn't -- as you say, it doesn't hurt anything, so. Okay.

Any other questions on the permit conditions? All right.

Thank you, sir, we appreciate the information you've provided us in your service to the Board. Thank you very much.

MR. ARAGUAS: Thank you.

JUDGE BOLLWERK: We're going on to 5:30. I think -- let me take one minute here to just confer with the Board Members, briefly, and see what we're going to do about scheduling. I think we're practically done here.

(Whereupon, the above-entitled matter went off the record at 5:26 p.m. and resumed at 5:27 p.m.)

JUDGE BOLLWERK: All right, if we could go back on the record, please.

As I mentioned, this part of our brief break, it's almost 5:30. We've been at this since 8:30. We've got a number of good presentations today. We appreciate very much the information given to us by both the NRC staff and Applicant Southern.

I think at this point we will -- it would probably be best to call it a day. We have one more -

- I think pretty clearly we're going to get this done tomorrow, but we'll start off in the morning, I think with the presentation on seismic which is number seven, I believe. That one is a rather involved one. It may well take us most of the morning.

We would like to go ahead and start at 8:30 again. And once we finish with the seismic, then we will continue on, finish up with the other two shorter staff presentations, one dealing with deferral, I'm sorry, one dealing with severe accident mitigation design alternatives and the other one with the AP 1000 design certification revisions.

One thing I should mention is there were several references today to the questions and answers that were provided, the questions by the Board and the answers provided by the staff and by Southern. I think I've mentioned this to counsel before, I wanted the witnesses to be aware of it, we found your responses very useful in terms of allowing us to focus our questions, our presentation requests that we had.

I know there's been some back and forth, perhaps between the staff and the Board in the past about questions and answers and responsiveness. We certainly found these to be very responsive to the questions we put forth. And I think it really did

help the process move forward because you gave us the information we needed.

There were certain things that we didn't need to pursue any more. We could simply drop those and I think, I hope it helped you all get a better sense of where we were at, what we were interested in the presentations you all were going to give us. It made the whole process, I think, work a little bit more smoothly this time around.

So again, we did very much appreciate the answers that you provided to the questions we posed. I think it was very useful to the overall process and again, in answering the specific questions we had. So we thank you for that very much.

At this point, 5:30, let's stand adjourned. We will see you all at 8:30 in the morning. Thank you.

(Whereupon, at 5:38 p.m., the evidentiary hearing was adjourned, to reconvene on Wednesday, March 25, 2009, at 8:30 a.m.)

CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of: Southern Nuclear Operating Co

Name of Proceeding: Mandatory Hearing

Docket Number: 52-011-ESP;
ASLB No. 07-850-01-ESP-01

Location: Waynesboro, Georgia

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Tobias Walter
Official Reporter
Neal R. Gross & Co., Inc.