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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

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IN THE MATTER OF: : Docket No.
PROGRESS ENERGY FLORIDA, INC., : 52-029-COL
(Levy County Nuclear Power : 52-030-COL
Plant Units 1 and 2) : ASLBP No.
(Combined License) : 09-879-04-COL-BD01
-----:

Thursday, November 1st, 2012

Levy County Circuit Court
355 South Court Street
Bronson, Florida 32621

The above-entitled matter came on for
hearing at 9:00 a.m.

BEFORE:
ADMINISTRATIVE JUDGE ALEX S. KARLIN, CHAIR
ADMINISTRATIVE JUDGE ANTHONY J. BARATTA
ADMINISTRATIVE JUDGE RANDALL J. CHARBENEAU

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C O N T E N T S

SUBJECT: GROUND WATER

Rajiv Prasad, Vince Vermeul, Peyton Doub,
Lance Vail, Daniel Barnhusrt. 1367

William Dunn, Jeffrey Lenhen, James Rumbaugh. . 1396

Gareth Davis, Timothy Hazlett, Sydney Bacchus . 1427

TOPIC: ENVIRONMENTAL MONITORING

William Dunn, Peter Hubbell 1462, 1523, 1554

Rajiv Prasad, Peyton Doub 1528

David Still, Sydney Bacchus 1533

Paul Rizzo. 1550

CLOSING ON BEHALF OF INTERVENOR 1572

CLOSING ON BEHALF OF THE APPLICANT. 1578

CLOSING ON BEHALF OF NRC 1585

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

2 (8:58 a.m.)

3 JUDGE KARLIN: Good morning, please be
4 seated.

5 Good morning, let's go on the record. My
6 name is Alex Karlin. To my right is Dr. Baratta. To
7 my left is Dr. Charbeneau.

8 This is The Atomic Safety and Licensing
9 Board proceeding second day continuation of our
10 evidentiary hearing in the matter of Progress Energy's
11 application to construct and operate two nuclear power
12 reactors in Levy County.

13 We had a good day yesterday, covered a lot
14 of ground. And today we are going to proceed to the
15 second major topic that we outlined in our order ahead
16 of time which consists of some questions we have about
17 the groundwater modeling that was done as part of
18 helping with the final environmental impact statement.

19 A couple of things, we have one day here
20 left and we have a goodly amount of ground to cover so
21 we are going to try to be as efficient as possible.
22 In that vein we would like to ask the witnesses to
23 keep their answers as succinct as possible. Answer
24 the question. If you need to explain something a
25 little bit that's obviously permissible, but we may

1 end up having to ask you to shorten it up if we find
2 that we don't need that information or we've already
3 covered it. There are a thousand pages of testimony
4 and thousands of pages of exhibits. We have read that
5 material and we think we understand a goodly amount of
6 it. The parts we don't understand that's what we'll
7 be asking questions about while the parts that are
8 material to our decision and that we don't understand
9 we will try to ask questions about.

10 So we may have to go a bit late this
11 evening. The court has indicated, Mr. Ship, Danny
12 Ship, the Clerk of the Court has indicated that we
13 could stay a little late. I mean they usually close
14 at 5:00 but we may end up going over a little bit. We
15 may also not finish this topic exactly at noon and
16 therefore maybe our lunch will be a little bit late.
17 Keep the answers short and succinct and maybe we can
18 get through this promptly.

19 Also, with regard to the written
20 questions, at the end of the topic we ask you for
21 questions, if you have any questions. Keep those in
22 mind as we are going along and we would like to have
23 them in writing because I think that will shorten it
24 up a little bit. If you've got them written you might
25 write them as we go along here and then cross out ones

1 that you find are not needed but please give them to
2 us in writing when we break at the end of a topic.

3 Again, before we start we are going to
4 remind everyone that the terminology we want to use
5 with regard to the models that were done, there is the
6 Southwest Florida Water Management District
7 District-Wide Regulation Model 2 which we will refer
8 to as the regional model. Then there is the model
9 that the Applicant submitted in connection with its
10 environmental report which was a local scale model,
11 400 square miles which we will refer to as Model 1.
12 Then the recalibrated version of that that was
13 required by the NRC staff and is discussed in the FEIS
14 we will refer to as Model 2. That may shorten up our
15 day by about a half an hour if we don't have to go
16 through all of those long names.

17 So with that said, is there anything Dr.
18 Baratta or Dr. Charbeneau?

19 JUDGE BARATTA: I may shorten it even more
20 and use M1 and M2.

21 JUDGE KARLIN: All right. With that we
22 want to call the first panel up. The topic is
23 groundwater modeling. The panel would be the staff
24 witnesses that we'd like to ask questions of and they
25 would be Dr. Prasad, Mr. Vermeul, Mr. Doub, I'm not

1 sure I got that right, and Mr. Vail. Could you all
2 take the stand please? All right let's add Dr.
3 Barnhurst to this thing as well. Poor Dr. Barnhurst
4 gets to be up again along with Mr. Vermeul.

5 JUDGE KARLIN: Now make sure you sit in
6 front of the microphone as much as possible or around
7 it. Mr. Barnhurst, maybe it would be best if you sat
8 at the other end. I'm not sure how you get closest to
9 that mike. Where's the mike? Right there, yes.

10 And again we need to remind ourselves as
11 well that we need to speak up so that the members of
12 the audience can hear us and the microphones can pick
13 up your testimony, if you would.

14 Whereupon,

15 RAJIV PRASAD, VINCE VERMEUL, PEYTON DOUB, LANCE
16 VAIL and DANIEL BARNHURST
17 were called as witnesses and, having been first duly
18 sworn, were examined and testified as follows:

19 JUDGE KARLIN: Perhaps we could go down
20 the line and ask each of you to identify yourself for
21 us and the court reporter. Another thing we might
22 add, we need to be careful because the court reporter
23 is going to have difficulty with five people speaking
24 into one mike. She needs to be really alert as to the
25 names of everyone so we probably need to either ask

1 you to say your name when that happens or we will try
2 to ask the question.

3 So, Mr. Barnhurst, could you just identify
4 yourself?

5 MR. BARNHURST: My name is Daniel
6 Barnhurst.

7 JUDGE KARLIN: And you are with?

8 MR. BARNHURST: I am with the U.S. Nuclear
9 Regulatory Commission.

10 DR. PRASAD: Rajiv Prasad with Pacific
11 Northwest National Laboratory.

12 MR. VERMEUL: Vince Vermeul with Pacific
13 Northwest National Laboratory.

14 MR. VAIL: Lance Vail with Pacific
15 Northwest National Laboratory.

16 MR. DOUB: Peyton Doub with the NRC staff.

17 JUDGE KARLIN: Mr. Doub, thank you.

18 Dr. Charbeneau?

19 JUDGE CHARBENEAU: I am going to go
20 through a number of different questions and I am going
21 to direct them, I think, at Mr. Vermeul but as ones
22 come up that are more appropriately answered by a
23 different individual please be happy to do so.

24 I want to start off with a few questions
25 with regard to the potentiometric surface. If you

1 look on page 227 of the FEIS you state that the
2 simulated pre-construction, you don't have to go
3 there. I am just going to tell you what I read there,
4 that the simulated pre-construction potentiometric
5 surface for the Florida aquifer system was consistent
6 with the description provided by the USGS with one
7 exception. From your memory is that correct?

8 MR. VERMEUL: Yes.

9 JUDGE CHARBENEAU: You cite two
10 references. One is USGS 2000 and that's the same as
11 the exhibit NRC document NRC020 and also a 2008 USGS
12 map and that's the same as our Board Exhibit BRD003.
13 Can we first pull up NRC020? I want to go to Figure
14 10. So this is the 2000 USGS report. If we could
15 focus in on the area, if you look in the area right
16 around the Levy plant can you tell me what the highest
17 elevation of the groundwater contour of the
18 potentiometric surface is that you see in the area of
19 the Levy plant?

20 MR. VERMEUL: Let me see. I am trying to
21 find where we are.

22 JUDGE CHARBENEAU: We are looking right
23 there. That's the number you are looking at.

24 MR. VERMEUL: 50.

25 JUDGE CHARBENEAU: If your eyesight works

1 it's 50.

2 Now, if we could go and look at Exhibit
3 BRD003. We have to get really close here. Can we get
4 anything closer? I would like to have you be able to
5 see some numbers. You may have looked at this
6 recently and might remember some of the numbers.

7 MR. VERMEUL: This one is 60.

8 JUDGE CHARBENEAU: Pardon me?

9 MR. VERMEUL: This one the highest is 60.

10 JUDGE CHARBENEAU: What is the highest
11 number you see associated with any well?

12 MR. VERMEUL: 69.

13 JUDGE CHARBENEAU: Very good. What is the
14 next highest number that you see in any well?

15 MR. VERMEUL: 51.

16 JUDGE CHARBENEAU: Would you agree that
17 the number 51 is consistent with the 2000 USGS map?

18 MR. VERMEUL: Yes.

19 JUDGE CHARBENEAU: Would you agree that
20 the number 69 might not be consistent with the 2000
21 USGS map?

22 MR. VERMEUL: Yes.

23 JUDGE CHARBENEAU: Do you know how many
24 wells were used as a basis for increasing the
25 potentiometric surface by roughly 20 feet? Was it

1 more than that single well?

2 MR. VERMEUL: I am not aware of how many
3 wells. I believe in the Applicant's testimony they
4 stated that it was only that single well that was
5 used.

6 JUDGE CHARBENEAU: Do you know by chance
7 whether that single well with the water level of 69 is
8 the T&R Ranch well?

9 MR. VERMEUL: Again, based on the
10 Applicant's testimony I believe that it is.

11 JUDGE CHARBENEAU: If we look at the
12 request for recalibration of model M1 to develop M2
13 was the basis for that comparison of this map as
14 opposed to the 2000 map?

15 MR. VERMEUL: No. The basis for that
16 recalibration was the fact that the heads on the LNP
17 site themselves when we looked at the water level data
18 that Progress collected during their year of
19 monitoring the heads that were measured on the site
20 were off by about 10 feet relative to the USGS
21 interpretation. Now that's not altogether, well, it's
22 not unexpected given that that data was not used or
23 available to the USGS when they did their regional
24 interpretation.

25 JUDGE CHARBENEAU: Let me see if I

1 understand. You are saying that the heads were off by
2 about 10 feet from the measured heads compared to the
3 USGS interpretation. How did those heads compare with
4 the predictions of model M1?

5 MR. VERMEUL: The predictions of model M1
6 compared very well with the USGS interpolation.

7 JUDGE CHARBENEAU: So the heads were also
8 off by 10 feet then with regard to model M1?

9 MR. VERMEUL: Yes. Correct.

10 JUDGE CHARBENEAU: Do you know of any
11 further investigation of this well with a head of 69
12 feet?

13 MR. VERMEUL: No.

14 JUDGE CHARBENEAU: Then I am assuming you
15 don't know how the recalibration of model M2 would
16 change if you considered all of the wells except for
17 the well with a head of 69 feet?

18 MR. VERMEUL: No. I mean I could
19 speculate as to how it would change. The
20 transmissivities were increased in order to lower the
21 heads. I'm sorry. Transmissivities were decreased in
22 order to build up the heads at the site and they
23 possibly wouldn't have had to have been decreased
24 quite as much if that TJ Ranch well was not used. But
25 for our purposes the recalibration that was done was

1 sufficient.

2 JUDGE CHARBENEAU: Now, let's turn to
3 discussion of the model development. That is
4 described on page 2-29 of the FEIS. To your knowledge
5 were the boundary conditions the same for both the M1
6 and M2 models?

7 MR. VERMEUL: No. They were not. On the
8 M1 model they took the boundary conditions directly
9 out of the DWRM2 model. On the M2 model those were
10 adjusted slightly to better reflect the USGS
11 potentiometric surface. I can't speak to how much
12 different it was. That's just based on the
13 Applicant's description of what they did.

14 JUDGE CHARBENEAU: Okay. So the regional
15 model, the calibrated regional model was used for the
16 basis for the boundary conditions on model M1 and then
17 those were modified slightly to match this USGS map?
18 For M2?

19 MR. VERMEUL: I believe so.

20 JUDGE CHARBENEAU: Is it correct that the
21 PESCO (phonetic) was used for model calibration for
22 M2?

23 MR. VERMEUL: Correct.

24 JUDGE CHARBENEAU: To your knowledge, were
25 hydraulic conductivity transmissivities and leak ins

1 values used as calibration parameters in the PESCO?

2 MR. VERMEUL: I don't believe hydraulic
3 conductivity was used.

4 JUDGE CHARBENEAU: For the surficial
5 aquifer?

6 MR. VERMEUL: I thought - I know their
7 primary objective function was the heads. I guess I
8 would have to defer to Progress.

9 JUDGE CHARBENEAU: If you don't know
10 that's fine.

11 MR. VERMEUL: I think you are correct. I
12 think the site specific information that was collected
13 in the surficial aquifer and the Upper Floridan was
14 included as a calibration target.

15 JUDGE CHARBENEAU: I'll re-ask this when
16 we talk to PEF. My reading of what was done was that
17 they, I am trying not to give testimony, was that they
18 established head values as calibration targets and
19 then you modify the hydraulic parameters to allow the
20 model to match those. If I understood how the PESCOs
21 work.

22 MR. VERMEUL: Correct.

23 JUDGE CHARBENEAU: On Page 2-31 of the
24 FEIS you note that the current water use is 3.51
25 million gallons per day. That is used in the M2

1 model. You also note that the groundwater use is
2 projected to increase to 10.3 million gallons per day
3 over 60 years. Was this increasing groundwater use in
4 the area used within the M1 and M2 models?

5 MR. VERMEUL: No, we didn't actually
6 request that they simulate it. They ran the
7 simulation based on the current usage to look at those
8 impacts and then we just simply looked at -- those
9 numbers resulted in a relatively small percentage of
10 overall groundwater usage. Based on that we then
11 could just project based on the percentage increase in
12 usage over time, what impact that would have. We
13 didn't actually ask them to simulate --

14 JUDGE CHARBENEAU: The increase over time.
15 So you did something like take the drawdowns based on
16 the 3.51 million gallons per day and then multiply
17 them by a ratio of 3.51 to 10.3 or something like
18 that?

19 MR. VERMEUL: Something like that.

20 JUDGE CHARBENEAU: Okay. I think we
21 talked about this or mentioned it yesterday but it is
22 true that the M2 model predicts larger drawdowns and
23 a greater region of drawdown than the M1 model?

24 MR. VERMEUL: Correct.

25 JUDGE CHARBENEAU: Page 5-7 of the FEIS

1 states, and I will quote this: "SWFWMD staff provided
2 technical guidance and peer review on the development
3 of the local scale model." I am going out of quotes
4 here because we are talking now to the M1 model.

5 "Once all identified technical deficiencies were
6 resolved issued a completeness determination that
7 recommended authorizing the average and maximum daily
8 values described." So this was for the water use
9 permit; is that correct?

10 MR. VERMEUL: Correct.

11 JUDGE CHARBENEAU: Then you used the term
12 "subsequently the model was recalibrated and this
13 recalibrated model has a larger drawdown and a larger
14 area of impact." Did the Southwest Florida Water
15 Management District review the M2 model?

16 MR. VERMEUL: They did not review the M2
17 model. We had a conference call with Progress and
18 SWFWMD and NRC staff to discuss the fact that the
19 model had been recalibrated. They were interested in
20 what we were doing but it didn't require them to
21 change their analysis for the water use permit
22 application. They were happy with using the original
23 model.

24 JUDGE CHARBENEAU: Okay so they made no
25 modifications or no certificate of completeness

1 determination for model M2?

2 MR. VERMEUL: No.

3 JUDGE CHARBENEAU: Did they make any use
4 of M2 at all or they were completely with model M1?

5 MR. VERMEUL: No, they were with M1.

6 JUDGE CHARBENEAU: We may have to go to
7 this one. I'm sorry I don't know the page number but
8 I am looking for Figure 5-2 of the FEIS. Actually I
9 can tell you the page number. It is page 5-9.

10 JUDGE KARLIN: Yes, it is.

11 JUDGE CHARBENEAU: Thank you.

12 This is the water budget diagram that we
13 are going to see. You may have to zero in a little
14 closer to the upper part. If you look at the upper
15 part under the model boundary box there is something
16 labeled drain. Can you explain what that is? The
17 number that I read there is 38.11.

18 MR. VERMEUL: Yes, those are -- that's
19 water that is discharged from the surficial aquifer
20 into drain cells.

21 JUDGE CHARBENEAU: What are the drain
22 cells representing?

23 MR. VERMEUL: They are representing a
24 constant elevation above which if the water table
25 rises above that elevation water is allowed to drain

1 out of the model.

2 JUDGE CHARBENEAU: Are they representing
3 a physical characteristic in the landscape?

4 MR. VERMEUL: Yes, they are representing
5 springs and seeps.

6 JUDGE CHARBENEAU: In terms of prediction
7 of the groundwater use impacts would you consider
8 model M1 or M2 to be more conservative? Depending on
9 how you answer it I am going to ask you to tell me
10 what you mean by conservative.

11 MR. VERMEUL: M2 is slightly more
12 conservative, but actually for the water balance
13 calculation both models gave actually fairly similar
14 results in that they both indicated that the usage was
15 quite small.

16 JUDGE CHARBENEAU: They both are
17 indicating small usage in terms of drawdown impacts?

18 MR. VERMEUL: No, in terms of the
19 percentage of the overall resource.

20 JUDGE CHARBENEAU: No, but I understand
21 that now. In terms of drawdown impacts, is one more
22 conservative than the other? I think we have gone
23 through this already.

24 MR. VERMEUL: Yes, in terms of drawdown
25 the M2 model is definitely more conservative.

1 JUDGE CHARBENEAU: On pages 34 and 35 of
2 your testimony you use the terms sufficiently
3 conservative, conservative, and reasonably
4 foreseeable. What does NEPA require in evaluations
5 for an FEIS?

6 MR. VERMEUL: Reasonably foreseeable.

7 JUDGE CHARBENEAU: You stated on page 46
8 of the testimony that staff has made no assessment as
9 to the relative merits of the two models and yet you
10 use M2 in making all of the environmental impact
11 assessments.

12 JUDGE KARLIN: Is that correct?

13 MR. VERMEUL: That's correct.

14 JUDGE CHARBENEAU: Did you do that for
15 what reason?

16 MR. VERMEUL: Well, we used model M2 to
17 demonstrate that there was a plausible conceptual
18 model that would result in drawdowns that were more
19 significant than what was predicted by model M1. So
20 it demonstrated that there was a case where there
21 would be absorbable drawdowns at wetland locations.
22 That case was then used, we provided that to the staff
23 ecology -- ecological assessment team, to use in their
24 assessment.

25 JUDGE CHARBENEAU: Was that done because

1 you considered model M2 more conservative or more
2 reasonable?

3 MR. VERMEUL: More conservative.

4 JUDGE CHARBENEAU: More conservative. If
5 we look at Model M1 and look at the surficial aquifer
6 they hydraulic conductivities of model M1 range from
7 11.1 to 23.9 feet per day. For model M2 they range
8 from 0.75 to 135 feet per day. Based on the
9 description of the physical materials in the surficial
10 aquifer that's presented in the FEIS do you consider
11 both of these ranges to be equally reasonable?

12 MR. VERMEUL: The 135 is probably starting
13 to move beyond what is reasonable.

14 JUDGE CHARBENEAU: But you would be
15 comfortable with the 11.1 to 23.9?

16 MR. VERMEUL: Yes.

17 JUDGE CHARBENEAU: I'm sorry. I shouldn't
18 have said what you would do. I will ask it, were you
19 comfortable with the --

20 MR. VERMEUL: Yes.

21 JUDGE CHARBENEAU: Okay. Thank you. I
22 think I am finished.

23 JUDGE KARLIN: Dr. Baratta, are you --

24 JUDGE BARATTA: Just one question. In
25 creating model 2 were you deliberately trying to

1 create an impact and see what would be required to
2 create that impact? Did I hear that correctly?

3 MR. VERMEUL: Well, we always want to look
4 at alternative conceptual models. So in this case we
5 had a condition where the heads were not
6 representative of what was observed at the sites so we
7 requested that they recalibrate so we could see what
8 that recalibration process, what kind of sensitivity
9 it would have on the transmissivity distribution and
10 the resulting drawdowns of the well field.

11 If we wouldn't have had that case we would
12 have requested at least some type of a sensitivity
13 analysis where they would have, we would have
14 requested the Applicant to make some changes to the
15 parameters so we could get a feel for how that would
16 impact the drawdown predictions.

17 JUDGE BARATTA: Okay.

18 JUDGE KARLIN: I guess I have a few
19 questions and I'm not entirely sure who is the best to
20 direct them to. Mr. Vermeul has been on the hot seat
21 here but maybe this is either Mr. Vermeul or Dr.
22 Prasad. They are some of the similar questions
23 though. Could we bring up the FEIS page 2.29 which
24 discusses the model development of the groundwater
25 models and how they were developed I guess. 2.29.

1 May I have the pointer?

2 JUDGE CHARBENEAU: Yes, you may.

3 JUDGE KARLIN: If I want to talk about
4 this page who should I be asking the questions of?
5 Mr. Vermeul? I thought that might be the case.

6 These may be easier. They've got to be
7 easier questions. In this page you talk about, and
8 our terminology is the regional model, Model 1 and
9 Model 2, and as I understand it, on the third line you
10 talk about the local scale model was a sub-model of
11 the Southwest Florida Water Management District model
12 to the regional groundwater model. Is that saying M1
13 was a sub-model of the regional model?

14 MR. VERMEUL: Correct.

15 JUDGE KARLIN: How was M1 created from the
16 regional model? I know you didn't do it but I want to
17 know what you understand of how it was created.

18 MR. VERMEUL: It's a process that is part
19 of the SWFWMD modeling approach. They call it the
20 telescoping mesh refinement. It's a standard
21 approach. It's just they have a set of codes for
22 doing it. It extracts boundary conditions out of the
23 regional model and takes that grid and refines it to
24 a 20 mile by 20 mile model.

25 JUDGE KARLIN: Okay. And the Southwest

1 Florida Water Management District comprises 10,000
2 square miles approximately?

3 MR. VERMEUL: I am not sure.

4 JUDGE KARLIN: The Southwest Florida Water
5 Management District model comprises 59,000 cells; is
6 that correct?

7 MR. VERMEUL: I would have to verify it.

8 JUDGE KARLIN: Okay. We will get to that
9 with the Applicant. You have a heads-up on a question
10 for you. How large is the region? The regional model
11 covers a large region?

12 MR. VERMEUL: A large region.

13 JUDGE KARLIN: And the Model 1 covers a
14 region, the local model covers a region of?

15 MR. VERMEUL: 20 miles by 20 miles.

16 JUDGE KARLIN: 400 square miles. And in
17 the creation of Model 1 are additional data points
18 from the real world used to create Model 1 or are they
19 just, is this an interpolation?

20 MR. VERMEUL: Model 1 is the model that
21 was used for the water use permit. It was extracted
22 directly out of the regional model. So all of the
23 transmissivities that are contained in the regional
24 model are extracted and are represented in the local
25 scale model, just for the refined mesh. M2 was a

1 refinement to try to --

2 JUDGE KARLIN: I'll get to that. Well
3 here's the analogy I have. It's a photograph. If I
4 take a photograph with my camera and maybe it's a 10
5 megapixel photograph and it's a photograph of the
6 graduating class of whatever, my daughter's high
7 school and there's 300 people there. I want to blow
8 up a particular shot of one of those individuals in
9 this big photograph. I put it into my computer and I
10 press, you know, to focus in on that particular thing
11 am I getting any additional data by blowing that
12 particular face up out of the crowd?

13 MR. VERMEUL: No.

14 JUDGE KARLIN: Isn't that what's happening
15 with the making Model 1 out of the regional model?

16 MR. VERMEUL: Yes. There is no additional
17 information there. The reason they blow it up is to
18 refine the mesh and be able to improve the drawdown
19 predictions.

20 JUDGE KARLIN: So the computer in my
21 analogy with the photograph is interpolating the
22 pixels to try to make, give me a large blow-up of the
23 individual face in the crowd. It's a
24 computer-generated interpolation; correct? Is there
25 any additional data there?

1 MR. VERMEUL: No.

2 JUDGE KARLIN: Is that a problem? I mean
3 how in the world are you going to assess a 400 square
4 mile area much less a 3 or 4 square mile area when the
5 data points are based on a 10,000 square mile area?

6 MR. VERMEUL: Well, it is based on the
7 information that is available.

8 JUDGE KARLIN: Well, isn't it possible to
9 go out and get some more information?

10 MR. VERMEUL: Yes.

11 JUDGE KARLIN: I mean the 118 bore holes
12 that the Applicant did on the north property, was that
13 data incorporated into M1?

14 MR. VERMEUL: No, but it was attempted to
15 be -- some of that information was incorporated into
16 M2.

17 JUDGE KARLIN: All right. Let's go to M2
18 then because on this page you talk about M1 being a
19 poor fit with the observed data in the field? That's
20 because they had this TJ Ranch 59 foot whatever?

21 MR. VERMEUL: No, it didn't have anything
22 to do with TJ Ranch.

23 JUDGE KARLIN: Okay.

24 MR. VERMEUL: The heads were actually
25 observed on the site. They were off by about 10 feet.

1 JUDGE KARLIN: So you had this
2 interpolated Model 1 and you went out to the real
3 world and you tried to connect it with the data from
4 the real world and it didn't fit with the real world;
5 is that right?

6 MR. VERMEUL: Correct.

7 JUDGE KARLIN: Which is more important,
8 the real world or the model?

9 MR. VERMEUL: I would say the real world.

10 JUDGE KARLIN: Right. I agree. So that
11 was a good thing to do. If there is some sort of, if
12 the model is inconsistent with what's out there in the
13 real world you want to try to deal with that. So you
14 say in this page 2.29 "to improve the goodness of fit
15 over this portion of the model domain which
16 encompassed LNP site well fields" you asked for a
17 recalibration; right?

18 MR. VERMEUL: Correct.

19 JUDGE KARLIN: Right. That is M2.
20 Ultimately the product of that was M2; right?

21 MR. VERMEUL: Correct.

22 JUDGE KARLIN: The next paragraph on page
23 2.29 talks about calibration. "Calibration targets
24 included in the recalibration process included 1) site
25 water table level data, 2) water level data from USGS

1 monitored wells within the model domain." That's a 20
2 by 20 area?

3 MR. VERMEUL: Yes.

4 JUDGE KARLIN: And "3) additional
5 measurements locations synthesized from the
6 potentiometric surface where no well coverage was
7 available." So 1) site water level data and 2) water
8 level data from other USGS, are those real world
9 information from sampling in the real world?

10 MR. VERMEUL: Yes.

11 JUDGE KARLIN: Great. That's good.
12 Number 3, is number 3 a real world sampling or is it
13 some computer-generated synthesized something?

14 MR. VERMEUL: Well, they are contours that
15 are developed based on real world data.

16 JUDGE KARLIN: It's based on, what data is
17 it? Is it 1 and 2 or some other data? 1 is some data
18 from the real world. 2 is data from the real world.
19 3 is something that is synthesized from something
20 else, is that potentiometric surface where no well
21 coverage was available. It sounds like there wasn't
22 any data out there. It was synthesized data.

23 MR. VERMEUL: There were still additional
24 wells that have been used to generate those
25 potentiometric surfaces, that in addition to inverse

1 calibration and understanding of transmissivity
2 distributions on a regional scale.

3 JUDGE KARLIN: Okay.

4 MR. VERMEUL: They were essentially taking
5 the potentiometric surface that Dr. Charbeneau had up
6 a few minutes ago. They went in and selected points
7 off of that potentiometric surface to include as
8 control points as calibration points so that the
9 resulting calibrated model would honor both the local
10 information, the USGS wells that are within the model
11 domain and then at a broader scale the USGS
12 potentiometric interpretive surface.

13 JUDGE KARLIN: Okay. On that quote the
14 first "The calibration targets included in the
15 recalibration process included 1) site water level
16 data." Could you talk about that? How many data
17 points are we talking about?

18 MR. VERMEUL: I would have to look. I
19 don't remember how many wells, a handful, six or eight
20 wells.

21 JUDGE KARLIN: Go ahead and look if you
22 could. It won't take too long.

23 MR. VERMEUL: 23 wells.

24 JUDGE KARLIN: 23 wells on the site water
25 level data. Where is that coming from? Is there

1 something in the FEIS that says that?

2 MR. VERMEUL: Yes, it's on page 2-26.

3 JUDGE KARLIN: Okay.

4 MR. VERMEUL: That's where it is talking
5 about when they did the hydraulic testing in the wells
6 but those were the same wells that were used for water
7 level monitoring. They didn't have continuous water
8 level monitoring in all of those wells.

9 JUDGE KARLIN: Okay, so page 2-26 of the
10 FEIS refers to slug tests that were performed in all
11 23 wells. So this is the 23 wells you are talking
12 about?

13 MR. VERMEUL: Yes.

14 JUDGE KARLIN: Okay. Good. And the
15 second point which was 2) water level data from other
16 USGS monitored wells within the model domain. How
17 many wells are we talking about there?

18 MR. VERMEUL: I am actually not sure.
19 That would be a question for Progress.

20 JUDGE KARLIN: So the M1 was recalibrated
21 or the recalibration was done to account for or to
22 deal with some 23 or more additional data points from
23 the real world?

24 MR. VERMEUL: Correct.

25 JUDGE KARLIN: That sounds like a good

1 idea to me. I guess it came up with a different
2 result, a little bit different result?

3 MR. VERMEUL: Correct.

4 JUDGE KARLIN: And Model 1 showed
5 drawdowns of less than half a foot in virtually the
6 entire site area; correct?

7 MR. VERMEUL: Correct.

8 JUDGE KARLIN: And Model 2 showed
9 drawdowns of 2 feet or more in some areas; is this
10 correct?

11 MR. VERMEUL: Correct.

12 JUDGE KARLIN: Now, Dr. Hazlett in his
13 rebuttal testimony at page 4 says that the predictions
14 of M1 and M2 differ by a factor of 4, 400 percent,
15 less than half a foot, more than 2 feet. Is that 400
16 percent difference a problem with regard to -- is that
17 a problem?

18 MR. VERMEUL: Well, it's --

19 JUDGE KARLIN: Does that trouble you?

20 MR. VERMEUL: Well, it demonstrates kind
21 of the key point of our assessment that this model can
22 be used for doing a water use type of assessment but
23 it's not appropriate for making estimates. It can't
24 provide an accurate enough estimate of drawdowns to be
25 used in a wetlands assessment.

1 JUDGE KARLIN: And, so, that's why the
2 FEIS concludes there is an uncertainty associated with
3 these models and therefore reliance is also put upon
4 the environmental monitoring and mitigation
5 conditions?

6 MR. VERMEUL: Correct.

7 JUDGE KARLIN: Dr. Hazlett in rebuttal
8 testimony page 5 also says, and I'm not sure, that M1
9 and M2 "took advantage of available data but made no
10 attempt to evaluate the uncertainties induced by the
11 lack of data." Is that true? I mean, did the NRC
12 make any effort to do a sensitivity analysis or
13 uncertainty analysis or confidence level analysis of
14 these predictions of M1 and M2?

15 MR. VERMEUL: We didn't because just with
16 a single alternate conceptual model by looking at the
17 recalibrated model demonstrated that it was plausible
18 that we could have a case where the impacts were
19 larger than what's predicted from the original model.
20 If we hadn't done that, like we mentioned to Dr.
21 Prasad, we would have done some type of sensitivity
22 analysis.

23 JUDGE KARLIN: If you hadn't attempted to
24 account for the additional data you could have been
25 criticized for ignoring real world data and just using

1 M1; right?

2 MR. VERMEUL: Right.

3 JUDGE KARLIN: So you took a look at what
4 M2 would generate. But the staff didn't conduct its
5 own model runs on any of this; did they?

6 MR. VERMEUL: No.

7 JUDGE KARLIN: I think that's all I have
8 at the moment.

9 JUDGE BARATTA: I just want to ask a
10 couple of very quick questions about the information
11 that you received from Progress. Did you -- when you
12 requested they recalibrated model what did you
13 actually get from them in terms of documents?

14 MR. VERMEUL: We reviewed the model
15 inputs, model outputs and they provided a REA response
16 that documented their approach and procedures they
17 used in the recalibration.

18 JUDGE BARATTA: When you say you reviewed
19 the model inputs and model outputs, was that a
20 tabulation of information?

21 MR. VERMEUL: It was a description of
22 information, maps, like the outputs example is the
23 head contour plots, the water balance diagrams, those
24 kinds of things.

25 JUDGE BARATTA: Did you take a look at the

1 calc notes that were used to develop those inputs, for
2 example?

3 MR. VERMEUL: The calc notes?
4 Calculation?

5 JUDGE BARATTA: Right.

6 MR. VERMEUL: Sheets.

7 JUDGE BARATTA: The calculation sheets.

8 MR. VERMEUL: No.

9 DR. BARATTA: And similarly did you look
10 at the calculation sheets that were used to develop
11 the output? I realize that a lot of this graphical
12 and such.

13 MR. VERMEUL: No, we didn't.

14 JUDGE KARLIN: I had another question.
15 The Intervenors assert and are concerned about the
16 possibility that there are preferential pathways in
17 and around the well field site or the LNP site that
18 could magnify or cause different environmental impacts
19 than are considered. The FEIS acknowledges that it is
20 plausible or possible that there would be preferential
21 pathways but you seem to think that it's covered by
22 the monitoring and mitigation plan. I guess my
23 question is, and this is perhaps for Mr. Vermeul as
24 well or perhaps Dr. Prasad, with regard to the data
25 points that you have that we have on the site, how

1 many wells were there, how much sampling was done,
2 what confidence level or lack of confidence level
3 would you have in whether or not you have identified
4 whether they are preferential pathways under the site,
5 under the well fields, in the vicinity of the well
6 field site? I mean if there were preferential
7 pathways would the data that we have at this point
8 have any chance of finding them?

9 MR. VERMEUL: Well, the data that has been
10 collected to date provides no indication that they
11 exist under the Nuclear Islands. There hasn't-

12 JUDGE KARLIN: Under the Nuclear Islands.

13 MR. VERMEUL: Under the Nuclear Islands.

14 JUDGE KARLIN: Right.

15 MR. VERMEUL: There hasn't been any data
16 collected to date at the well field location. Based
17 on regional information, that would indicate that
18 there is no strong indication that properties change
19 significantly as you move in that direction but it
20 won't be known for sure until the characterization is
21 done at that location.

22 JUDGE KARLIN: When is that
23 characterization going to be done?

24 MR. VERMEUL: It is done as part of the
25 conditions of certification of the active performance

1 testing.

2 JUDGE KARLIN: So it is after the plant
3 has been built and pumping has begun?

4 Well, if that's not true tell me what it
5 is. Perhaps Mr. Barnhurst?

6 MR. BARNHURST: In the aquifer performance
7 test description, in the COCs, the conditions of
8 certification, the aquifer performance testing is done
9 5 years before the use of a well that is pumped at
10 greater than 100,000 gallons per day. That's the time
11 frame that's given there.

12 JUDGE KARLIN: Okay, it's after the NRC
13 has issued the license; is that right?

14 MR. VAIL: It could be. It depends on how
15 quickly the NRC issues the license, and how quickly
16 the COCs are done.

17 JUDGE KARLIN: Well, we will get to the
18 monitoring and mitigation later this afternoon. Thank
19 you.

20 Any other questions? Great. I am sorry
21 we didn't get to ask the others of you any questions.
22 I apologize that we couldn't but maybe we will think
23 of some.

24 Thank you.

25 Now, we are going to call up another panel

1 on the topic of groundwater modeling. If we could ask
2 Dr. Dunn, Mr. Lehnen and Mr. Rumbaugh, please?

3 Okay, I know that some of you have already
4 been sworn in but we will just do this as a group if
5 we could.

6 Whereupon,

7 WILLIAM DUNN, JEFFREY LEHNEN and JAMES RUMBAUGH,
8 were called as witnesses and, having been first duly
9 sworn, were examined and testified as follows:

10 JUDGE KARLIN: Could you identify
11 yourselves, please, for the record and where you work?

12 DR. DUNN: I am Bill Dunn. I am with the
13 firm of DSB Consulting.

14 MR. RUMBAUGH: James Rumbaugh with
15 Environmental Simulations.

16 MR. LEHNEN: Jeff Lehnen with CH2M Hill.

17 JUDGE KARLIN: Welcome. Dr. Charbeneau?

18 JUDGE CHARBENEAU: I will start again. I
19 am going to ask a few questions first off for Mr.
20 Rumbaugh. If we look at your Exhibit PEF103, you
21 don't have to go there, I am going to ask you a
22 question with regard to PEF103. It describes the
23 district-wide regulation model version 2 which we are
24 calling the regional model. Do you have any idea why
25 the tables and figures associated with the exhibit

1 were not provided?

2 MR. RUMBAUGH: No, I don't.

3 JUDGE CHARBENEAU: You state in your
4 testimony that you designed and calibrated the
5 regional model for the Southwest Florida Water
6 Management District. Do you know whether other
7 districts in Florida use a similar type of a model for
8 looking at water use permits or is this unique to the
9 single district?

10 MR. RUMBAUGH: I am familiar with most of
11 the districts in Florida. I have never done any work
12 with Northwest Florida. But aside from them all of
13 the other districts use models like this for
14 permitting.

15 JUDGE CHARBENEAU: So use of a mod flow
16 based model for water use permitting is fairly
17 prevalent in Florida?

18 MR. RUMBAUGH: That's correct.

19 JUDGE CHARBENEAU: Similarly you use the
20 focus telescopic mesh refinement model to zero in to
21 look at more detailed drawdowns at a particular
22 location. Do other districts use a similar type of a
23 refinement to a more regional scale mod flow based
24 model?

25 MR. RUMBAUGH: SWFWMD was the first to do

1 that. I created that for them under contract. Since
2 then I have also done the same thing for St. Johns
3 River Water Management District I just delivered to
4 them this summer for their models that are set up for
5 the same procedure. The other districts now have not
6 done that.

7 JUDGE CHARBENEAU: Okay, maybe not that
8 you have necessarily done it. Do they have that
9 available to them? Maybe somebody else did or do you
10 just not know?

11 MR. RUMBAUGH: Not that I am aware of.

12 JUDGE CHARBENEAU: Can we show Figure 231
13 from the FEIS on page 2-179? This will be the
14 stratigraphic cross section. Your regional model
15 includes 5 layers?

16 MR. RUMBAUGH: That's correct.

17 JUDGE CHARBENEAU: Can you show or tell me
18 the designation of these layers as they would show up
19 on the stratigraphic cross section?

20 MR. RUMBAUGH: Layer 1 is the surficial
21 aquifer that is here so the quaternary deposits and so
22 forth are surficial. In the southern part of the
23 water district we then have 2 layers in what's called
24 the intermediate aquifer system. We don't have that
25 at the LNP site.

1 JUDGE CHARBENEAU: I know. We will get to
2 it in a second.

3 MR. RUMBAUGH: So where it says Zone 2 and
4 Zone 3 we typically call those PZ2 and PZ3. Those are
5 part of the intermediate and those are layers 2 and 3
6 in the regional model. Now we don't have those in the
7 north but the layers have to be continuous in mod
8 flows so there's sort of a small, thin layer that in
9 effect works like the surficial in the north.

10 JUDGE CHARBENEAU: You are answering my
11 next question. Keep going.

12 MR. RUMBAUGH: Layer 4 is the upper
13 Floridan aquifer which includes actually several units
14 in the south. In the north, again, it's mainly Avon
15 Park and in some areas also the Ocala. And then layer
16 5 is called the lower Floridan aquifer which in SWFWMD
17 really only occurs significantly in the eastern side
18 of the district.

19 JUDGE CHARBENEAU: And you have already
20 anticipated my next question, was how do you turn off
21 layers? Because I know that layers 2 and 3 are not
22 present.

23 DR. RUMBAUGH: That's correct. They don't
24 really turn off. Unfortunately in mod flow you can't
25 pinch out a layer. So what we do is just create a

1 thin, like 10 foot thick layer underneath the
2 surficial. It basically has the same properties as
3 the surficial. It acts as just a small buffer between
4 the surficial and the upper Floridan.

5 JUDGE CHARBENEAU: Do you give it a large
6 vertical leak ins then?

7 MR. RUMBAUGH: Especially in areas where
8 there is no confinement. There is a transition zone
9 north of Tampa where you don't really have the
10 intermediate but you do have some confinement between
11 the surficial and the upper Floridan. In those areas
12 we do restrict vertical flow but as you move to the
13 north of the LNP site we use a very high vertical leak
14 ins so that they are on good communication.

15 JUDGE CHARBENEAU: Your calibration of the
16 regional model went through two steps. I understood
17 that you were calibrating hydraulic parameters during
18 the first steady state calibration step. In the
19 second transient step was there any further adjustment
20 of the hydraulic conductivity or transmissivity or
21 leak ins or were those held constant from phase 1
22 calibration?

23 MR. RUMBAUGH: They were generally held
24 constant. I believe there were a couple of iterations
25 though. In some areas we saw some adjustments needed

1 to be made to the hydraulic parameter, to the
2 transmissivity and so forth, but primarily it was to
3 confirm the storage coefficients and specific yield in
4 the surficial.

5 JUDGE CHARBENEAU: In your testimony on
6 page 13 you state that recharge rates are based on
7 USGS estimates for 1995 which was the time period of
8 the steady state model. You go on to say this is now
9 for application in the transient model. They were
10 adjusted against continuous rainfall records. I am
11 trying to make sure what this means. Does it mean
12 that a constant recharge fraction of the rainfall was
13 used for the entire simulation period?

14 MR. RUMBAUGH: In the northern part of the
15 district that's right. It was generally a consistent
16 fraction but there were some adjustments made based on
17 matching hydrographs in key wells around the district.
18 So it started out as a uniform fraction but there had
19 to be some adjustments made, especially during
20 droughts and high rainfall periods. The fractions had
21 to be adjusted somewhat.

22 JUDGE CHARBENEAU: So were the fractions
23 adjusted spatially or temporally?

24 MR. RUMBAUGH: Both.

25 JUDGE CHARBENEAU: Both. Do you agree

1 that large transmissivity values can be indicative of
2 karst conditions?

3 MR. RUMBAUGH: Yes.

4 JUDGE CHARBENEAU: Do you agree with the
5 USGS that the transition to karst conditions occurs
6 with transmissivities in the range of 250,000 to a
7 million feet squared per day?

8 MR. RUMBAUGH: That's a reasonable range.
9 I tend personally to view it more in the half a
10 million to more than a million.

11 JUDGE CHARBENEAU: So what do you think?
12 Above a million you are comfortable is karst?

13 MR. RUMBAUGH: Definitely above a million.
14 Between half a million and a million it is possible
15 that that could be simply highly fractured zones.

16 JUDGE CHARBENEAU: 100,000 would not cut
17 it near?

18 MR. RUMBAUGH: Not in my opinion, no.

19 JUDGE CHARBENEAU: On page 19 of the
20 Exhibit PEF103, which is your documentation for the
21 regional model you state that the calibrated regional
22 model has transmissivity values ranging from 13,000 to
23 10 million.

24 MR. RUMBAUGH: Correct.

25 JUDGE CHARBENEAU: Can we infer then that

1 your regional model does include simulation of karst
2 conditions?

3 MR. RUMBAUGH: Yes, certain parts of the
4 north, as Mr. Lehnen talked about yesterday, around
5 Rainbow Springs and so forth, have very high
6 transmissivities indicative of karst.

7 JUDGE CHARBENEAU: Your transient
8 calibration of the regional model is based on the time
9 period of 1995 to 2002. If you look at that time
10 period can you characterize the rainfall record or
11 hydrologic conditions? Was this a period of drought
12 or heavy rain or very steady rain or is there
13 anything, how specifically could you characterize the
14 hydrology of that period?

15 MR. RUMBAUGH: We tried to pick a period
16 that had both dry conditions as well as very wet
17 conditions. The start of the simulation, the reason
18 we picked '95 for the steady state calibration, and a
19 lot of the districts have done this, including the
20 USGS is because that was a period when rainfall was
21 generally average and there weren't any extreme events
22 occurring during the early '90's. So that has been a
23 popular period for a steady state calibration.

24 Then when we did the transient, as I said,
25 we tried to make sure we hit both drought conditions

1 as well as higher than average rainfall conditions.

2 JUDGE CHARBENEAU: Okay. So the model has
3 been exposed to both wet and dry conditions?

4 MR. RUMBAUGH: That's right, yes.

5 JUDGE CHARBENEAU: Is the mesh refinement
6 scheme, your TRM model, the same in all model
7 applications?

8 MR. RUMBAUGH: Well --

9 JUDGE CHARBENEAU: You start off with your
10 1 square mile cells on the outside and then you scope
11 down. Is it always a 20 mile by 20 mile region?

12 MR. RUMBAUGH: No, that's just the
13 default. For small permits like this the district
14 barely goes beyond 20 by 20 miles. There are times
15 when we get really big permits or multiple permits or
16 in the south where they're concerned they have a
17 southern water use caution area and the most impacted
18 area. In those cases the TMR model has to be a lot
19 bigger because they are looking at much smaller
20 drawdowns in the Floridan because they have decided
21 there cannot be any more impact in those areas.

22 JUDGE CHARBENEAU: So you can change the
23 size?

24 MR. RUMBAUGH: You can change the size,
25 yes.

1 JUDGE CHARBENEAU: How about the rate of
2 telescoping, so the decreasing of the mesh spacing?

3 MR. RUMBAUGH: Yes, you can change that as
4 well.

5 JUDGE CHARBENEAU: Is there a typical size
6 of the cells in the middle of the domain? You started
7 out at a mile by a mile on the outside. How small do
8 you get in the middle?

9 MR. RUMBAUGH: The default is 250 feet.
10 Most people use that. Occasionally when the district
11 wants to look at a very small scale feature they may
12 go smaller than that but that's fairly rare.

13 JUDGE CHARBENEAU: So a 250 by 250 cell in
14 the middle up to 5,280 by 5,280 on the outside?

15 MR. RUMBAUGH: Even 5,000, yes.

16 JUDGE CHARBENEAU: Even 5,000.

17 In developing the local scale model on
18 page 14 of your initial testimony you state that
19 surficial boundary conditions and here you say e.g.
20 wetlands and rivers are then revised using a
21 geographic information system so that they are more
22 accurate in the refined grid scale. Is any
23 calibration done at this local scale?

24 MR. RUMBAUGH: No, the idea is to make
25 sure that the location of these features is accurate

1 in the refined grids so we have in the regional model
2 we have a 5,000 by 5,000 foot grid. We can't just use
3 that when we go to the fine scale because we have, for
4 example, the barge canal would be everywhere and
5 that's not the case so we have to refine it. We use
6 the GIS for that.

7 JUDGE CHARBENEAU: So that's just
8 designating the type of cell on the 250 by 250 scale?

9 MR. RUMBAUGH: That is correct.

10 JUDGE KARLIN: And GIS is?

11 MR. RUMBAUGH: Geographic Information
12 System.

13 JUDGE CHARBENEAU: Again in the local
14 scale model hydraulic conductivities and
15 transmissivities and leak ins values, these are simply
16 interpolated from the regional model?

17 MR. RUMBAUGH: That's correct.

18 JUDGE CHARBENEAU: Just a straight linear
19 interpolation?

20 MR. RUMBAUGH: It's actually not even
21 interpolated. We look at where the local grid cell
22 lies in the regional model and uses the properties
23 from that.

24 JUDGE BARATTA: Can I interrupt? When you
25 said in going to the refined mesh you want to make

1 sure you've got the features in the right cells. Now
2 that's additional information because originally the
3 barge canal would have been smeared out over a 1 mile
4 by 1 mile area for example. Now it's down to maybe 2
5 cells, 250 by 250 and then of course along the length
6 of it. That is additional information relative to
7 where that water is; isn't it?

8 MR. RUMBAUGH: Yes. There's actually a
9 lot of information that's added because for example
10 the regional model didn't take into account lakes and
11 didn't try to simulate them as open bodies of water.
12 Because most of the lakes just aren't that big
13 compared to the model grid cells. So when we go to
14 the local scale model then we actually do add lakes as
15 open water features. We add wetlands which are not
16 really simulated at the regional scale.

17 So there is a lot of added information
18 from the Geographic Information System.

19 JUDGE BARATTA: So while there's a certain
20 degree of what might loosely be called interpolation,
21 that is, you are still using generic properties of the
22 larger cell, there is additional information that's
23 added to make that cell unique that would not have
24 appeared in the original larger scale model?

25 MR. RUMBAUGH: That's correct, yes.

1 JUDGE CHARBENEAU: You have anticipated my
2 next question again or should I say Judge Baratta did.
3 How are wetlands represented in the regional model and
4 on the local scale model?

5 MR. RUMBAUGH: They are not really in the
6 regional model due to the grid scale. When we go to
7 the fine grid model, the TMR model, they are added as
8 drains so that they can extract water but they can't
9 act as a source of recharge.

10 JUDGE CHARBENEAU: Okay. That's the same
11 thing that is done with springs too; is that correct?

12 MR. RUMBAUGH: That's correct, yes.

13 JUDGE CHARBENEAU: In your testimony
14 discussing model recalibration you state that you
15 considered and rejected the T&J Ranch well as a
16 calibration target because the water levels measured
17 were so high that it might not be representative of
18 the upper Floridan aquifer system. Did you make any
19 further investigations of the well in terms of its
20 completion or other features?

21 MR. RUMBAUGH: Yes. I looked at the
22 database that SWFWMD maintains for all of their wells
23 in their inventory. That database includes things
24 like how the well is constructed, the geographic log
25 information of the geology that is penetrated and so

1 forth. The T&J Ranch well has no geologic log, so I
2 gathered from that that it wasn't drilled with a
3 professional geologist. It has no construction
4 information so we don't know whether it's a screened
5 well, whether it's an open rock well, we don't know
6 how long the casing is. We just don't know much about
7 it. We do know it is 115 feet deep and that water
8 levels have been measured in it. Typically when I see
9 an anomalous well like that, if I don't have details
10 on construction and geology, I don't like using that
11 well.

12 JUDGE CHARBENEAU: Was the Southwest
13 Florida Water Management District staff involved in
14 your decision not to include the T&J Ranch well in
15 your calibration of the regional model?

16 MR. RUMBAUGH: As I recall, yes. The
17 model really was developed very cooperatively with the
18 district. I would also like to mention there is a new
19 model out now for the northern part of the district
20 called the northern district model. We are now
21 working on updating the regional model again to a
22 version 3.

23 As part of that just the last couple of
24 months I have reviewed this northern district model
25 and I was particularly interested in what they did

1 with T&J Ranch because it was a different contractor.
2 They also excluded it from the Floridan aquifer. They
3 did include it as a surficial aquifer well though and
4 that's probably what we'll do in D13.

5 So myself, the district and this other
6 contractor have viewed the T&J Ranch well as not being
7 representative of the Floridan.

8 JUDGE CHARBENEAU: The district though is
9 comfortable with not using that?

10 MR. RUMBAUGH: Yes.

11 JUDGE CHARBENEAU: I think you have just
12 answered my next question. Do you have any reasons
13 for what you consider to be the high water level
14 reading in the well? I think you just said that you
15 think of it as being completely within the surficial
16 aquifer rather than representing the upper Floridan.

17 MR. RUMBAUGH: Yeah, I think the key is
18 representative. I think it is completed in the very
19 top of the upper Floridan, you know, based on the
20 depth and what we know about thickness of surficial
21 and so forth. It probably is partially in the upper
22 Floridan but in that area the upper Floridan is around
23 650 feet thick. This well penetrates less than 10
24 percent of it. So I think it is more representative.

25 The other thing you have to look at is how

1 you would get an amount that high in the Floridan. I
2 have done some experiments on that and the only way
3 you can do it is with a transmissivity well less than
4 a 1,000 feet square per day. That just doesn't
5 happen.

6 JUDGE CHARBENEAU: In your rebuttal
7 testimony on page 8 you state that when evaluating
8 drawdowns from well pumping, the drawdown effects
9 would be the same regardless of whether a steady state
10 or transient model is used. Are there implicit
11 assumptions embedded in that response?

12 MR. RUMBAUGH: I suppose there must be.
13 I mean, obviously it is a complicated model.

14 JUDGE CHARBENEAU: Yes.

15 MR. RUMBAUGH: But you know, when you take
16 a model like this and you change the pumping rate and
17 then you run that out over a period of time, if you
18 compare that to a similar simulation without that
19 increase in pumping, you simply subtract the heads
20 that are computed and you get a certain drawdown and
21 that's sort of independent of anything else going on.

22 JUDGE CHARBENEAU: So you have got, that's
23 kind of an empirical verification is what you are --

24 MR. RUMBAUGH: Well, it is mathematical.
25 Think of it as a super position. It is basically a

1 linear model so if we increase pumping regardless of
2 what the water table is doing we are always going to
3 get the same amount of drawdown.

4 JUDGE CHARBENEAU: I don't want to put on
5 my academic hat. Is it truly a linear model in the
6 surficial aquifer?

7 MR. RUMBAUGH: Not truly but it is close.

8 JUDGE KARLIN: You are supposed to tell
9 the truth.

10 MR. RUMBAUGH: Sorry, not strictly
11 speaking.

12 JUDGE KARLIN: There you go.

13 JUDGE CHARBENEAU: Let me go on to Mr.
14 Lehnen. In your testimony on page 13 you state that
15 permitted groundwater uses amount to roughly 6.1
16 million gallons per day for the M1 model but then on
17 Exhibit PEF211 and in Figure 5.2 of the FEIS the
18 figure is listed as, instead of 6.1 it is 5.09. Was
19 that just a typo or is there really a difference
20 between the two?

21 MR. LEHNEN: No, those numbers are
22 correct. 6.1 is the permitted use by the SWFWMD
23 agency within the model domain. Many of those wells
24 are located at the cells, the boundary cells of the
25 model. Since those boundary cells are constant

1 themselves the model won't react to that drawdown
2 because the constant head cell will just feed water in
3 from the constant elevation.

4 So we were only able to really simulate
5 the 3.5 MGD of other use with those wells located
6 inside the model domain and away from the boundary
7 cells.

8 JUDGE CHARBENEAU: In modeling the
9 drawdown, due to the pumping wells at the LNP site,
10 was the well discharge specified as 275 gallons per
11 minute for each well with all of the wells pumping, or
12 was it specified as 1,100 gallons per minute for a
13 single well on a 4 day rotation? Did that make any
14 sense, first off?

15 MR. LEHNEN: Oh, absolutely. The
16 simulation included all 4 wells pumping at 275 gallons
17 per minute each. So they are all pumping and it's
18 averaged out to the 275 which adds up to the 5.8
19 million gallons per day. So the model was being
20 stressed at that 1.5 MGD. It's just distributed to
21 the 4 wells. That did become part of our strategy of
22 well spacing, to move the wells as far apart as
23 practical so that those stresses in the aquifer
24 system, as Jim Rumbaugh says, don't superimpose on
25 each other any more than necessary.

1 We did run the model at 5.8 MGD to
2 simulate the maximum day demand. In that case all of
3 the wells were pumping at 1,100 gallons per minute
4 each but that was a transient run for a 1 week period.

5 JUDGE CHARBENEAU: My understanding was
6 that the wells will operate so one well will operate
7 at 1,100 gallons per minute for this day, then I'm
8 going to shut off for 3 days. Another one will turn
9 off.

10 MR. LEHNEN: That is correct.

11 JUDGE CHARBENEAU: Did you ever look to
12 see whether there is a difference between this
13 rotating system of operation compared to one quarter
14 of the discharge at a constant rate?

15 MR. LEHNEN: Yes, we did. We looked at 24
16 hour transient modeling runs so that we were pumping
17 each well discretely for 24 hours and rotates through
18 the valve field over a 4 day period. What we found is
19 in steady state conditions you get the same results of
20 drawdown. In transient conditions, for maybe 1 week,
21 you might see slightly different contours but because
22 the system is going to be operated continuously we
23 determined that the steady state conditions were est
24 representative of the well field drawdown.

25 JUDGE CHARBENEAU: I think Mr. Rumbaugh

1 has already answered my second question. I was asking
2 were the two layers inactivated. You state that layer
3 2 and layer 3 are inactive and I think I now
4 understand that.

5 On page 4, I think it was in response to
6 an RAI, of Exhibit PEF212 you state that Model 1 was
7 modified from the regional model to include Little
8 King and Big King Springs as drain cells. I am
9 assuming that these springs are not included in the
10 regional model; is that correct?

11 MR. LEHNEN: That is correct.

12 JUDGE CHARBENEAU: Did you do any
13 calibration to evaluate the drain elevation in
14 conducting this?

15 MR. LEHNEN: Yes. When we added Big King
16 and Little King we used the Springs of Florida
17 publication to estimate the flow from those springs.
18 It added up to about 5 million gallons per day based
19 on the State of Florida record. So when we put we put
20 the drains in to simulate those springs we adjusted
21 the conductance of those drains so that we got about
22 5 MGD so we did use those for that volume discharge of
23 the calibration target.

24 JUDGE CHARBENEAU: The drain elevation
25 came just from topographic information?

1 MR. LEHNEN: Yes.

2 JUDGE CHARBENEAU: This will be a somewhat
3 complicated question. I'll try to go through it
4 slowly. In your testimony on page 22 you state that
5 the representation of wetlands in the model was
6 changed from use of the river package to variable head
7 conditions. There are a couple of parts to the
8 question. Is it true that in the river package, cells
9 are still considered variable head?

10 MR. LEHNEN: I am not perfectly clear on
11 that.

12 MR. RUMBAUGH: Yes, they are still active.

13 JUDGE CHARBENEAU: You just have the river
14 characteristics embedded in the cell.

15 MR. RUMBAUGH: That is correct.

16 JUDGE CHARBENEAU: So you changed from a
17 river package to a variable head cell, and a variable
18 head cell is like any other cell in the domain;
19 correct?

20 MR. LEHNEN: Correct.

21 JUDGE KARLIN: Can you speak up a little
22 bit?

23 MR. LEHNEN: Yes.

24 JUDGE CHARBENEAU: So the wetlands no
25 longer have any real characteristics in the model; is

1 that correct? It's a variable head cell and you are
2 just looking at the water level change?

3 MR. LEHNEN: Yes, that's correct. We did
4 that at the request of the Water Management District
5 because they felt that the river cells could feed
6 water into the model unrealistically or at least from
7 a conservative perspective we could add more water if
8 we had drawdown beneath the wetland so in order to be
9 conservative and look at the drawdown beneath the
10 wetland without that additional potential water
11 feeding into the model we converted them to an active
12 cell using a variable head cell.

13 MR. RUMBAUGH: And if I could just add,
14 the reason they do that is because some of the GIS
15 data that we use in creating the TMR model is not
16 perfect and so they will mischaracterize a wetland as
17 a stream or a wetland as a lake or something like
18 that. As part of the TMR process those features are
19 often put in as rivers and it's a common practice
20 especially in the northern part of the district for
21 the district to ask the Applicant to remove all river
22 cells except for major ones so that they get a
23 conservative drawdown prediction.

24 JUDGE CHARBENEAU: Okay. Thank you.

25 How were the Unit 1 and Unit 2 Nuclear

1 Islands represented in models M1 and M2?

2 MR. LEHNEN: The nuclear units are not
3 representative in the model in any discrete way.

4 JUDGE CHARBENEAU: So in the model, water
5 is still flowing through the aquifer, you'd say the
6 100 foot area of the surficial aquifer beneath the
7 units 1 and 2?

8 MR. LEHNEN: Yes, the cells, the model
9 cells that are beneath the units, which would be maybe
10 1 or 2 model cells at 250 by 250 dimensions are
11 straight out of the TMR extraction so we didn't try to
12 modify those cells for any of the parameters.

13 JUDGE CHARBENEAU: You didn't take the
14 permeability or hydraulic conductivity to zero or
15 anything?

16 MR. LEHNEN: No.

17 JUDGE CHARBENEAU: This is going to be a
18 consistent question. Do you agree that large values
19 of transmissivity can be indicative of karst
20 conditions?

21 MR. LEHNEN: Yes, very large values could
22 indicate a very well developed karst.

23 JUDGE CHARBENEAU: And do you agree with
24 the USGS transition range of 250,000 feet squared per
25 day to a million feet squared per day as roughly that

1 transition region?

2 MR. LEHNEN: I would agree that at the low
3 end of their range you are likely getting some
4 fractured flow and some conduit flow and then
5 certainly at the higher range you are getting large
6 cavities in the conduit flow.

7 JUDGE CHARBENEAU: And greater than a
8 million, you are fairly comfortable that it's karst?

9 MR. LEHNEN: Yes.

10 JUDGE CHARBENEAU: In Table 3 from Exhibit
11 PEF210, it states that the range of transmissivity for
12 the upper Floridan aquifer in Model 1 is 20,184 up to
13 5,383,400 feet squared per day. I think I have copied
14 those correctly.

15 Does this imply that Model 1 does attempt
16 to represent karst conditions?

17 MR. LEHNEN: That range that's given is
18 within the whole model domain, and yes, the very high
19 transmissivities would be indicative of conduit flow
20 within the model.

21 JUDGE CHARBENEAU: Do you have any
22 recollection of the locations within the M1 domain
23 where you had those large transmissivity values?

24 MR. LEHNEN: Well, if I can, let me start
25 at the Nuclear Island, where we have the field data

1 which gives us 62 to 68,000 feet squared per day. The
2 M1 has a value of transmissivity of 50 to 70,000 feet
3 squared per day in that same area so there is an
4 excellent agreement between the model and the Nuclear
5 Island.

6 As we move to the south the model of
7 transmissivity increases so that when we're on the
8 southern property, where the well field is located,
9 the transmissivity in the model is about 100 to
10 200,000 feet squared per day.

11 Then as you move further south, across the
12 barge canal, the model predicts even higher
13 transmissivities of 200,000 feet squared per day and
14 up.

15 So in the model where transmissivity is
16 increasing as you move to the south, to the point
17 where it's probably in the millions in the area of the
18 Crystal Springs group, which is to the south.

19 JUDGE CHARBENEAU: So that may be the
20 location where you have values as large as 5,300,000?

21 MR. LEHNEN: Yes.

22 JUDGE CHARBENEAU: I think we just heard
23 the answer to this, but let me ask it again. In M1,
24 when that was developed you had measurements of water
25 levels in the LNP wells available?

1 MR. LEHNEN: Yes, we did.

2 JUDGE CHARBENEAU: And I understand from
3 the last panel that the water levels in M1 as the
4 model predicted were off from the measured values by
5 10 feet roughly; is that correct?

6 MR. LEHNEN: It was a little less than 10
7 feet. We have measured water levels on the site in
8 the range of 37 to 39 feet above sea level and a
9 simulation of M1 gave us water levels in the range of
10 28 to 34 feet above sea level, so they were 8 to 9
11 feet different.

12 JUDGE CHARBENEAU: And they were lower
13 than the --

14 MR. LEHNEN: In the model simulation well,
15 water levels were lower than what was measured in the
16 field.

17 JUDGE CHARBENEAU: On page 25 of your
18 testimony you described the changes that were made to
19 the model during the recalibration process. There are
20 a couple of things that weren't quite clear.

21 First on page 18 in his testimony Mr.
22 Rumbaugh suggests that recalibration to include the
23 groundwater mound created by the T&J Ranch well
24 required both decreasing the hydraulic conductivity
25 and increasing the local recharge. However, when you

1 compare exhibits PEF211 and Figure 5-2, these are the
2 water balance charts. One of these you had prepared
3 separately as an exhibit and one from FEIS. Those
4 suggest that the rainfall recharge from both models
5 are roughly the same.

6 Is there a difference between what you're
7 saying, Mr. Rumbaugh, and what was done? Either one
8 of you can answer that.

9 DR. RUMBAUGH: Well, it depends on what
10 you call recharge. What Jeff was calling recharge was
11 actually, I believe, river cells that had to be added
12 to inject a bit more water to maintain the mound
13 there.

14 JUDGE CHARBENEAU: So the fact that the
15 recharge rainfall that is shown on those water balance
16 models is truly rainfall that enters the upper most
17 active layer as a rainfall input or recharge input; is
18 that correct?

19 MR. LEHNEN: Correct.

20 JUDGE CHARBENEAU: Those are the same for
21 both models?

22 MR. LEHNEN: We left rainfall recharge the
23 same in M1 and M2. We did not modify rainfall
24 recharge. We did however add river cell recharge by
25 placing 3 large, 3 of the cells in the area of T&J

1 Ranch to feed more water into the model because we
2 were unable to calibrate the model without additional
3 water coming into the model in the vicinity of T&J
4 Ranch.

5 JUDGE CHARBENEAU: So you placed a river
6 cell, out of the river package you specify a river
7 stage at a level that you want it to be?

8 MR. LEHNEN: About one foot below land
9 surface for the high conductance involved.

10 JUDGE CHARBENEAU: Is that water then
11 that's being generated by the rivers included in the
12 overall water balance?

13 So you are actually saying that, in
14 essence what you're saying is I am increasing the
15 rainfall, since there isn't a river there?

16 MR. LEHNEN: Right. Right. I am
17 simulating additional recharge that there's no surface
18 expression that there should be additional recharge
19 there.

20 JUDGE CHARBENEAU: And you were not able
21 to get any calibration unless you did that?

22 MR. LEHNEN: That is correct.

23 JUDGE CHARBENEAU: That's because of the
24 69 feet that you're measuring in the T&J Ranch well?

25 MR. LEHNEN: That gave us a lot of

1 difficulty calibrating the model, yes.

2 JUDGE BARATTA: Do you know how many
3 gallons per day that resulted in adding to the model
4 offhand?

5 MR. LEHNEN: Approximately 3 to 5 million
6 gallons per day. It's the flux through those river
7 cells.

8 JUDGE CHARBENEAU: That's pretty good.
9 You just answered the next two.

10 In performing the 60-year simulations with
11 M1 and M2, do you use average rainfall conditions for
12 the whole simulation?

13 MR. LEHNEN: We used the net recharge
14 values that are built in to the regional model. We
15 didn't change the recharge values when we ran our
16 60-year simulations.

17 JUDGE CHARBENEAU: So there was no attempt
18 to try to simulate drought conditions?

19 MR. LEHNEN: Well, yes. The net recharge
20 values, as Mr. Rumbaugh stated, include a period of
21 time of wet and dry seasons.

22 JUDGE CHARBENEAU: The calibration does,
23 but in the simulations of the 60-year time period you
24 are basically putting in a constant recharge, am I
25 correct?

1 MR. LEHNEN: Yes.

2 JUDGE CHARBENEAU: I am all set.

3 JUDGE KARLIN: Anything further, Dr.

4 Baratta?

5 JUDGE BARATTA: You said that the
6 difference between Model 1 prediction for the Levy
7 site wells and the actual measurements was on the
8 order of 4 to, I think, 8 feet, something on that
9 order. Is that within the uncertainty that is typical
10 of this technology?

11 MR. LEHNEN: Well, I think we have to look
12 at the natural variation that occurs in the upper
13 Floridan aquifer. In my rebuttal testimony I present
14 the water level results from several of the USGS
15 monitor wells that are very close to the site. They
16 have long term water level records of these wells. In
17 some cases they vary by 8 to 10 feet over periods of
18 40 and 50 years.

19 So the upper Floridan has quite a bit of
20 variability in this area. We can also observe that
21 when we have our water level data monitored for our
22 continuous water level reports on the wells for
23 several years. We had about 5 feet in that 1 year
24 period of time.

25 The calibration of this model is set to

1 1995 conditions, whereas we're simulating conditions
2 of pumping and stress in the 2001 period and then the
3 stress in the 2006, 7 and 8 period. So a difference
4 of 8 to 10 feet is in the range of what the natural
5 water level that's been observed to be in the upper
6 Floridan. So I think in this area, where there's not
7 a very high density of field data, it probably
8 represents a reasonable estimate of what the aquifer
9 behavior is.

10 JUDGE BARATTA: So it is more determined
11 by the basic input into the model or the basic input
12 could influence that. You chose what you considered
13 to be reasonably close to average conditions as your
14 base input. That was what you said earlier or that's
15 what was said I think.

16 MR. LEHNEN: Yes, that is correct.

17 JUDGE BARATTA: Thank you.

18 JUDGE KARLIN: Anything further?

19 Everyone will be glad to know that Dr.
20 Charbeneau has stolen all of my good questions, so I
21 don't have any at the moment, but we are going to now
22 take a break for 15 minutes. During that time frame,
23 well I guess we still have the Applicant, the
24 Intervenor witnesses to come so we still have a bit to
25 go on this one. So let's make that a 10 minute break,

1 10 minutes. We're adjourned.

2 (Whereupon, the above-entitled matter went
3 off the record at 10:35 a.m. and resumed at 10:46
4 a.m.)

5 JUDGE KARLIN: Everyone please be seated.

6 The Atomic Safety and Licensing Board is
7 now reconvening in the continuation of the evidentiary
8 hearing in the matter of Progress Energy's application
9 to construct and operate two new nuclear power plants
10 in Levy County.

11 Let us now go to -- we are on the topic of
12 groundwater modeling and we are going to call up the
13 next panel of witnesses. These are the Intervenor
14 witnesses. For this panel we would like Mr. Davies,
15 Dr. Hazlett and Dr. Bacchus to take the stand please.
16 Whereupon,

17 GARETH DAVIES, TIMOTHY HAZLETT and SYDNEY BACCHUS,
18 were called as witnesses and, having first been duly
19 sworn, were examined and testified as follows:

20 JUDGE KARLIN: Is there any way we could
21 adjust the blinds behind there? That one is okay but
22 we can't see the witnesses' faces very well because
23 there is blinding light behind them or an aura.

24 Could you identify yourselves for the
25 record, your name and your employment?

1 DR. BACCHUS: Sydney Bacchus. I am an
2 Intervenor witness with Clyde Environmental Services.

3 DR. HAZLETT: Tim Hazlett. I work for
4 DHI.

5 MR. DAVIES: Gareth Davies. I work for
6 the State of Tennessee in the DOE Oversight Office, in
7 Oak Ridge.

8 JUDGE KARLIN: I'm sorry. Could you
9 repeat that?

10 MR. DAVIES: State of Tennessee at the
11 Department Energy Oversight Office, in Oak Ridge.

12 JUDGE KARLIN: Okay, so you are an
13 employee of the State of Tennessee?

14 MR. DAVIES: But I am also independent
15 consultant.

16 JUDGE KARLIN: Oh, I see.

17 All right, thank you.

18 Dr. Charbeneau?

19 JUDGE CHARBENEAU: Let's start with Mr.
20 Davies. In your testimony you criticize the use of
21 porous media assumptions in the groundwater modeling
22 used in both the ER and the FEIS. To your knowledge
23 are porous media models used for making water
24 resources management decisions at other locations that
25 exhibit well-developed karst?

1 MR. DAVIES: Yes, they are.

2 JUDGE CHARBENEAU: Would you consider
3 their use to be inappropriate?

4 MR. DAVIES: In some cases, yes.

5 JUDGE CHARBENEAU: Do you have alternative
6 groundwater resources planning and management models
7 that you would recommend being used instead?

8 MR. DAVIES: I could recommend --

9 JUDGE KARLIN: Could you speak up? We all
10 need to make sure the people in the audience can hear
11 as well.

12 MR. DAVIES: I don't do modeling myself,
13 but I have been part of teams that have used models
14 that I would feel would be much more appropriate.

15 JUDGE CHARBENEAU: And these would not be
16 porous media-based models?

17 MR. DAVIES: Unfortunately, they are all
18 porous media-based models but they have the capacity
19 to include conduits and other such features in
20 karsting models.

21 JUDGE CHARBENEAU: Let's go on to some
22 questions with Dr. Hazlett. On page 2 of your
23 testimony you cite 4 serious shortcomings of the
24 groundwater model. I am going to take each one of
25 these just to see if I understand what they are. The

1 first one is, I will put it in quotes, "It cannot
2 predict how changes will occur over time." Earlier on
3 in your testimony you state that this is a steady
4 state media model. So my question here is do you
5 disagree with both PEF and the NRC staff that the
6 models were run in transient mode impact evaluation
7 conditions?

8 DR. HAZLETT: Excuse me, but which
9 question was that again?

10 JUDGE CHARBENEAU: On page 2 of your
11 testimony.

12 DR. HAZLETT: Page 2.

13 JUDGE CHARBENEAU: It's right at the
14 beginning.

15 DR. HAZLETT: Yeah. What I have asked
16 specifically by that was not that the model was not
17 necessarily run in transient mode but that transient
18 characteristics of the system were not incorporated
19 into that model. Like rainfall variation for example.
20 So what I was saying was that if you had a transient
21 rainfall signal that was driving that system you would
22 potentially see transient responses in the
23 groundwater.

24 JUDGE CHARBENEAU: Okay, so the
25 statement really shouldn't be that it cannot predict
how changes will occur. It was applied in a way that

1 did not predict how changes would occur.

2 DR. HAZLETT: Yeah. I could do with a
3 rewording, I agree, yeah.

4 JUDGE CHARBENEAU: Second, you state that,
5 and this is again in quotes, "It omitted salinity
6 interactions with the nearby barge canal." My
7 understanding was that the model predicts water
8 flowing from the groundwater system into the canal
9 throughout the entire time period, so what salinity
10 interactions are not being considered?

11 DR. HAZLETT: For example, it's commonly
12 known in Florida that if you have these barge cuts,
13 that they are opposite of the ocean during drought
14 periods. An extreme example would be during drought
15 periods, you have encroachment of salt water up the
16 canals and that becomes an impact to the local
17 groundwater supply or otherwise depending on the
18 conditions.

19 JUDGE CHARBENEAU: But if the -- again,
20 you are criticizing the model, if the model was always
21 predicting water flowing from the groundwater system
22 into the canal. Are there any salinity interactions
23 to be considered?

24 DR. HAZLETT: Well, I don't think that it
25 was ever pointed out where the salt water or fresh

1 water interface was located. Of course that moves
2 depending on the wetter times or dryer times. That
3 would be pushed out to sea during wetter times and
4 come in during the dryer times.

5 JUDGE CHARBENEAU: That's a feature that
6 you feel should be included in these --

7 DR. HAZLETT: Typically when you are
8 looking at water supply issues or potential impacts
9 along the coast it is at least considered to some
10 degree.

11 JUDGE CHARBENEAU: You stated a third
12 serious shortcoming is again, in quotes, "It is not
13 well-suited to predict how pumping in the FAS will
14 affect levels of salinity in the SAS." First off, is
15 there salinity in the SAS in the vicinity of the LNP?

16 DR. HAZLETT: Salinity in the SAS near the
17 --

18 JUDGE CHARBENEAU: LNP.

19 DR. HAZLETT: LNP. I don't have data on
20 that myself. Dr. Bacchus?

21 DR. BACCHUS: Yes, your Honor, I think
22 what you would have to consider is the salt water
23 recharge going through the surficial and into the
24 aquifer from salt deposition from the cooling towers.
25 That was part of our contingent, that basically you

1 were going to be creating a saline surface water
2 situation at the site, which then would be pulled in
3 from the wells and you would be literally
4 contaminating the surficial aquifer from salt
5 deposition from the cooling tower water. So that
6 would be an input that should have been considered in
7 the model.

8 JUDGE CHARBENEAU: Okay. So this is not
9 salinity that's there at this point in time? This
10 would be salinity that would show up afterwards.

11 DR. BACCHUS: Yes, sir. You are correct,
12 Your Honor.

13 JUDGE CHARBENEAU: The fourth serious
14 shortcoming is that it assumes that aquifers
15 themselves are uniform. My question here is in what
16 way does the model assume that the aquifers are
17 uniform? I am not sure I understand.

18 DR. HAZLETT: Well, just uniform in
19 composition, that there could be fractures, there
20 could be faults, there could be karst features.
21 That's what I am taking away from an ideal porous
22 medium, and considering the fact that in the field and
23 under actual conditions there are likely to be these
24 types of features in the subsurface.

25 JUDGE CHARBENEAU: But does the model

1 attempt to represent such features by varying
2 transmissivity and hydraulic conductivity values?

3 DR. HAZLETT: Yes.

4 JUDGE CHARBENEAU: So you are not trying
5 to say that those are uniform?

6 DR. HAZLETT: No.

7 JUDGE CHARBENEAU: On page 3 of your
8 testimony you cite NRC staff comment within the FEIS
9 that the slug test hydraulic conductivity values were
10 below the hydraulic property range specified in the
11 regional groundwater model. You go on to state that
12 these differences, and I will quote you, "are a strong
13 indication that the model is unable to simulate actual
14 field conditions."

15 Can we pull up Mr. Davies' Exhibit INT005?
16 This is showing scaling effects.

17 JUDGE KARLIN: Is this Intervenor Exhibit
18 005?

19 JUDGE CHARBENEAU: Yes, it is.

20 It is showing scaling effects with core
21 samples, slug tests, pumping tests et cetera. This
22 is, as I understand it, it's from karst or carboning
23 terrain. Looking at the scale effects that we see
24 here, is there an expectation that the regional scale
25 values would be larger or smaller than what I would

1 measure with a slug test or would you might expect to
2 see slug test values to be smaller than regional scale
3 values used in the model?

4 DR. HAZLETT: I think that what I was
5 trying to say here is simply that the point-wise
6 values from which the conductivity or hydraulic
7 properties were derived at the wells, when putting the
8 model in use as calibration points, did not
9 necessarily fit well because of the fact that the
10 model was not representing perhaps a local feature.

11 JUDGE CHARBENEAU: Well, but those
12 point-wise values you stated in here are smaller than
13 the values used in the model so those were not used in
14 the model themselves. You state that the fact that
15 they are smaller is a strong indication that the model
16 was unable to simulate actual field conditions. I
17 guess my question is looking at the type of scaling
18 effects that we would commonly see, is it surprising
19 that slug test values are not smaller than --

20 DR. HAZLETT: No. No.

21 JUDGE CHARBENEAU: On page 4 of your
22 testimony, with reference to use of a more physically
23 accurate model, you state, and I am going to quote,
24 "Use of dye tracers to determine the locations of
25 major preferential flow pathways would greatly assist

1 to understand how pumping will affect the local
2 groundwater."

3 First off, I'm not really sure what you
4 mean by a more physically accurate model. Is this
5 still a numerical model of some type or is it a
6 physical model or -- I am on page 4 of your testimony.

7 DR. HAZLETT: Yeah, I am trying to find
8 it.

9 What I am trying to get at there is that,
10 of course, the numerical model is a mathematical
11 representation, a simulation of reality, but that its
12 accuracy and its robustness can be improved by the
13 addition of data such as what is mentioned here.

14 JUDGE CHARBENEAU: The dye tracers?

15 DR. HAZLETT: Yeah.

16 JUDGE CHARBENEAU: How do you incorporate
17 the tracer test data into the model?

18 DR. HAZLETT: Well, I have done it in
19 other models where we had injection points and then
20 discharge points and then inferred that the presence
21 of conduits, and essentially put them in as discrete
22 features, into embedded inside a porous medium well.

23 JUDGE CHARBENEAU: So you are using the
24 model to predict the tracer tests, but if I had tracer
25 test data, is there a way to identify from the tracer

1 tests what those features are and put those in my
2 models; is that what you're saying?

3 DR. HAZLETT: Yes.

4 JUDGE CHARBENEAU: On Answer A6 on page 4
5 of your testimony, you state that you consider the
6 range in K values for the M2 model to be unreasonable.
7 I think that's what we were talking about earlier, the
8 .85 to 134 feet per day. Do you think the range in K
9 values and transmissivity values from the M1 model are
10 reasonable?

11 DR. HAZLETT: I think that the values were
12 improved upon from M1 to M2.

13 JUDGE CHARBENEAU: The values were
14 improved upon from M1 to M2 so you found M2 to be
15 unreasonable, but M1 values are more unreasonable?

16 DR. HAZLETT: Yes.

17 JUDGE CHARBENEAU: So a smaller range in
18 hydraulic conductivity is more unreasonable than a
19 larger range in hydraulic conductivity?

20 DR. HAZLETT: Well, I think that what I
21 was looking at here was the fact that in the second
22 model they did add in some more data, even though I
23 didn't think that the spatial distribution of that
24 data was very large for the model. I know that they
25 also applied some optimization techniques that would

1 have, mathematically speaking, at least, improved the
2 model.

3 JUDGE CHARBENEAU: Okay. So there was
4 more data that was used specific to the site in Model
5 M2?

6 DR. HAZLETT: Yes.

7 JUDGE CHARBENEAU: But in terms of the
8 resulting parameter set, which is what I am referring
9 to, the K values and P values, the hydraulic
10 conductivity and transmissivity values.

11 DR. HAZLETT: Yes.

12 JUDGE CHARBENEAU: Do you think the values
13 themselves in Model M2 are more reasonable than the
14 data parameter values in Model M1? I agree that Model
15 M2 has more site specific data incorporated with it.

16 DR. HAZLETT: I apologize. I'm trying to
17 sort out what I said here.

18 Yeah, so I think what I was getting at
19 here also was the fact that there were averages that
20 were presented. That's one thing, and I felt with
21 such a variation in numbers that the average wasn't
22 all that meaningful.

23 JUDGE CHARBENEAU: I agree with that. But
24 the range though? I am looking at a rather narrow
25 range for Model M1 and a much larger range for M2, for

1 use within a numerical model where the smallest cells
2 are 250 feet by 250 feet.

3 DR. HAZLETT: Yes. I think I also was --
4 I'm sorry, I apologize. I was speaking about the
5 thicknesses, the thickness variations, which would
6 give you the transmissivities and there was nothing
7 shown about the thickness variations that I saw.
8 Depending on those, the actual transmissivity values
9 could vary quite a bit. I think that between the two
10 models I don't recall what the differences were.

11 JUDGE CHARBENEAU: My understanding is
12 that in the mod flow you don't deal with thicknesses
13 exclusively. You don't actually put in sizes of
14 layers, you just specify that -- I am going on. I
15 should stop.

16 Do you generally agree that large
17 transmissivity and hydraulic conductivity values can
18 be used to represent karst strength?

19 DR. HAZLETT: I think on a regional scale
20 it is fine to use those large values for karst
21 representation.

22 JUDGE CHARBENEAU: Are you comfortable
23 with the range suggested by the USGS, the 250,000 to
24 a million feet squared per day as being a transition
25 from --

1 DR. HAZLETT: Yeah, that doesn't make me
2 uncomfortable.

3 JUDGE CHARBENEAU: With the ranges of
4 parameter values used within both Model 1 and Model 2,
5 would you agree that both models, maybe not in the
6 area that you are interested in, but both models do
7 attempt to, by the transmissivity values incorporate
8 karst conditions implicitly through the transmissivity
9 values?

10 DR. HAZLETT: Well, I think that at the
11 size of the model, it's 20 by 20, I think, miles and
12 then going down to 250 foot square cells, I think that
13 I would feel more comfortable in the bigger cells with
14 those values that are further from the site but in
15 towards the site, it makes me a little more
16 uncomfortable where there is finer resolution being
17 called for by the model itself, with a finer
18 discretization.

19 JUDGE CHARBENEAU: Are you aware of any
20 agency that has successfully used an integrated
21 surface water/groundwater model for making water
22 resources planning and management decisions?

23 DR. HAZLETT: Agencies?

24 JUDGE CHARBENEAU: Yes. Or regulatory
25 body or like a district? I know that academic

1 exercises often use those.

2 DR. HAZLETT: Yes. Would you like me to
3 name them?

4 JUDGE CHARBENEAU: If you could just give
5 me a couple of examples.

6 DR. HAZLETT: Well, the South Florida
7 Water Management District is probably the one I know
8 the most about. They also use it in California.

9 JUDGE CHARBENEAU: I think I am all set
10 with my questions.

11 JUDGE KARLIN: I have a couple of
12 questions.

13 Mr. Davies, the Applicant and the staff
14 seem to be suggesting that you are demanding that an
15 integrated groundwater surface water model be used
16 here; are you?

17 MR. DAVIES: Can I read my testimony to
18 see what language I actually used.

19 JUDGE KARLIN: Just tell me right now.
20 Are you advocating that an integrated groundwater
21 surface water model be used?

22 MR. DAVIES: Not exactly.

23 JUDGE KARLIN: Okay.

24 MR. DAVIES: What I referred to before was
25 a model that could incorporate conduits which would

1 incorporate sinking screens and obviously springs.

2 JUDGE KARLIN: Okay.

3 MR. DAVIES: That's what I was suggesting.

4 JUDGE KARLIN: Okay, so you are not
5 advocating an integrated groundwater surface water
6 model be used here?

7 MR. DAVIES: Not exactly, I said.

8 JUDGE KARLIN: Not exactly?

9 MR. DAVIES: Yes.

10 JUDGE KARLIN: Could we pull up Mr.
11 Davies' initial testimony? I believe that's in
12 Intervenor Exhibit 001 at page 14. I think it is page
13 14.

14 MR. FLYNTZ: (Complies.)

15 JUDGE KARLIN: A pointer perhaps? Let's
16 go to the top of that page please. Scroll on down a
17 little further, Mr. Flyntz.

18 MR. FLYNTZ: (Complies.)

19 JUDGE KARLIN: Stop there. I don't have
20 my box with me with your hard copy of your testimony
21 so my pagination may be off here. Let's go to the
22 next page, 15.

23 MR. FLYNTZ: (Complies.)

24 JUDGE KARLIN: All right, stop there. No,
25 go back up to 14, please. Wait a second. Stop.

1 MR. FLYNTZ: (Complies.)

2 JUDGE KARLIN: Well, I am not sure I can
3 find it.

4 But in your testimony you say, and I have
5 this in quotes "It would take 1,000 3 centimeter drill
6 holes per acre (404 per hectare) to have a 90 percent
7 probability of intersecting a 1 meter solid elliptical
8 object in the sub-surface. Obviously, 118 borings on
9 a 3,105 acre site is less than the optimum number
10 needed for an accurate analysis of conduits, even if
11 they are large."

12 So I want to focus on the testimony you
13 made which was "It would take 1,000 3 centimeter drill
14 holes per acre to have a 90 percent probability of
15 intersecting a 1 meter solid elliptical object in the
16 sub-surface." Now, 1,000 drill holes per acre, 3000
17 acres, are you advocating that they put, and my math
18 isn't all that good, something like several hundred
19 thousand or a million drill holes on this site in
20 order to satisfy you that there are no preferential
21 conduits?

22 MR. DAVIES: No, sir.

23 JUDGE KARLIN: Well, what is the meaning
24 of your, what is the relevance of this statement then?

25 MR. DAVIES: The relevance of the

1 statement is related to the probability of wells
2 intersecting conduits.

3 JUDGE KARLIN: Right, I understand that.
4 What probability do you want? How many wells do you
5 want them to drill to satisfy you?

6 MR. DAVIES: Well, unfortunately it's
7 implicit on using other techniques such as geophysics
8 to possibly locate the presence and the location of
9 conduits. Then you can more accurately possibly drill
10 closer to that.

11 JUDGE KARLIN: Okay. How many wells do
12 you want them to drill? You said "Obviously 118
13 borings is not enough." Do you suggest that a 1,000
14 per acre is appropriate but something in between
15 there?

16 MR. DAVIES: The 1,000 per acre refers to
17 the probability of intersecting an object like is
18 described in that reference.

19 JUDGE KARLIN: Right and what is the
20 relevance of that intersecting a 1 meter solid
21 elliptical object? What is the relevance of that?
22 We're not looking for that. We're looking for
23 conduits; right?

24 MR. DAVIES: Correct, sir.

25 JUDGE KARLIN: So if you see, you are

1 looking for a conduit that's 1 meter around? Would
2 that catch a conduit that is 1 meter in diameter?

3 MR. DAVIES: With possibly the 90 percent
4 probability, yes.

5 JUDGE KARLIN: Is that what you want, 1000
6 bore holes per acre?

7 MR. DAVIES: Not necessarily. If there
8 was further work done to enhance the probability of
9 finding --

10 DR. HAZLETT: May I interject?

11 JUDGE KARLIN: No, not at this point.

12 This is Mr. Davies' testimony. Go ahead.

13 MR. DAVIES: Sorry, sir. I said not
14 necessarily if an enhanced method was used to
15 possibly, to make it more likely that a conduit
16 existed in a location where you could subsequently
17 drill. Such as geophysical techniques.

18 JUDGE KARLIN: What are the geophysical
19 techniques?

20 MR. DAVIES: A natural potential has been
21 used to do this.

22 JUDGE KARLIN: What?

23 MR. DAVIES: It's a technique called a
24 natural potential method.

25 JUDGE KARLIN: What is that?

1 DR. HAZLETT: It uses the streaming
2 potential of groundwater for instance in a conduit
3 that produces an electrical difference, a voltage
4 difference, a milli-voltage difference between the
5 bedrock and the stream in the sub-surface that can be
6 detected on the sub-surface and then plotted as either
7 a plan map in contours and then the conduits can be
8 better located in planned view at any particular site.

9 JUDGE KARLIN: Okay. That's sounds
10 helpful.

11 Your testimony confuses me a little bit in
12 this regard. You say "It would take 1,000 3
13 centimeter drill holes per acre (404 per hectare)."
14 I thought a hectare was bigger than an acre. How can
15 there be fewer in a hectare and more in an acre? Is
16 that reversed?

17 MR. DAVIES: Well, the hectare number
18 possibly is not accurate but the original reference
19 only has the 1,000.

20 JUDGE KARLIN: But a hectare is bigger
21 than an acre; right?

22 MR. DAVIES: Correct.

23 JUDGE KARLIN: It is 4 acres or something?

24 MR. DAVIES: Correct.

25 JUDGE KARLIN: Okay. All right.

1 Mr. Vermeul testifies on page 8 of his
2 rebuttal testimony, and you don't need to bring that
3 up, Mr. Vermeul of the staff witnesses "In order to
4 develop realistic representations of the location,
5 orientation, hydrologic behavior of fractured/channel
6 networks one would need a high density of test wells
7 as well as inter-well tracer tests to determine
8 connectivity." He then says "This would be a large
9 effort that would result in an insignificant reduction
10 in prediction uncertainty." Do you agree with that?

11 MR. DAVIES: No.

12 JUDGE KARLIN: Why not? Would it be a
13 large effort?

14 MR. DAVIES: It would be a large effort
15 but if you go back to what I just said the effort can
16 be reduced if more enhanced methods can be used to
17 more precisely drill.

18 JUDGE KARLIN: Okay. But, that's not what
19 he was assuming. What he said was "This would result
20 in an insignificant reduction in prediction
21 uncertainty." You disagree with that? Or agree, I
22 don't know.

23 MR. DAVIES: I disagree with that if the
24 drilling could result in locating more conduits, a
25 conduit or conduits.

1 JUDGE KARLIN: Well, that's a big if.
2 That's the whole point, isn't it, to your concern with
3 conduits. You want to try to have a drilling effort
4 that would locate, would have a reasonable probability
5 of locating those conduits; right?

6 MR. DAVIES: Correct, sir, yes.

7 JUDGE KARLIN: NEPA is a rule of reason,
8 they have to do what is reasonable to assess the site
9 and we're trying to understand what is reasonable
10 here. Can you tell us and perhaps Dr. Hazlett can
11 also address this, with regard to the sub-surface
12 characterization in the modeling plan that has been
13 used in M2 and M1, what degree of certainty or
14 uncertainty do they have with regard to identifying
15 preferential pathways that to our concern may be
16 there. What is the uncertainty? What's the
17 certainty? What's the sensitivity of what we've got
18 now, what M2 has now?

19 Dr. Hazlett?

20 DR. HAZLETT: Well, I think that the
21 uncertainty from this environmental point of view is
22 mainly in regards to the wetlands and further
23 uncertainty which has been commented on numerous times
24 these last 2 days about where might karst features be
25 if at all.

1 A simple way to reduce uncertainty would
2 be to instrument the wetlands. We've got --

3 JUDGE KARLIN: What does that mean
4 instrument?

5 DR. HAZLETT: We have simulations of --

6 JUDGE KARLIN: Have instruments out
7 there?

8 DR. HAZLETT: We have simulations of M1
9 and M2 which look at the groundwater head or drawdown.

10 JUDGE KARLIN: Right.

11 DR. HAZLETT: Under certain conditions.
12 We have made inference that certain impacts or lack of
13 will be made to wetlands yet we have no monitoring of
14 wetlands in place.

15 JUDGE KARLIN: Right.

16 DR. HAZLETT: We have no calibration to
17 the data in the wetlands et cetera.

18 JUDGE KARLIN: Let me stop you there. I
19 mean my question is more on the lines of I am
20 accustomed to somewhat understanding, dealing with,
21 hearing about models, predictions. I have often in
22 those contexts heard that there are uncertainties
23 associated with modeling and predicting something.
24 That's a given. Often time in that context people, or
25 the experts will say well, this model prediction has

1 an uncertainty or a confidence level of X or
2 certainty, uncertainty boundary of Y. I haven't seen
3 any quantification of the uncertainty here. Everyone
4 talks about it. Could it be quantified, the
5 uncertainty quantified?

6 DR. HAZLETT: Yes, it can. And, in fact,
7 it probably dropped out as a consequence of some of
8 the runs of tests that they did which was the
9 parameter estimation tool that they used for
10 autocalibration.

11 Generally speaking, what I can say from
12 looking at M1 and M2 is that the areas where they have
13 more data they will have a better prediction with less
14 uncertainty.

15 JUDGE KARLIN: Sure.

16 DR. HAZLETT: And the areas to the south,
17 for example, where the well field is planned where
18 they have very little data actually uncertainty will
19 be high in a relative sense. I can't say absolutely.

20 JUDGE KARLIN: All right. I think that's
21 all I've got at the moment.

22 JUDGE BARATTA: Just one question. I
23 believe the staff earlier today stated that based upon
24 the comparison of results from Model 1 and Model 2
25 the question that stood in the way of this approach

1 for modeling ecological impacts on wetlands. Would
2 you agree with that?

3 DR. HAZLETT: Yes, I would, sir. I would
4 say that we talked about some of the conditions on the
5 surface for example and one of them is this drain
6 condition. A lot of the wetlands get represented as
7 drains if I am not mistaken. The drain condition
8 allows for when the water levels get above the ground
9 surface the water exits the model but in a physical
10 sense if you're thinking about process the water if it
11 can leave that place in the wetland it sure as heck
12 can go in there too. There is no mechanism for that.

13 So we can't measure necessarily how much
14 water is going in there. That's just one example that
15 I can give.

16 JUDGE BARATTA: Mr. Davies, would you
17 agree with that, what I said a moment ago, what staff
18 said that this approach might not be that good for
19 modeling impact on wetlands?

20 MR. DAVIES: I agree.

21 JUDGE BARATTA: Dr. Bacchus.

22 DR. BACCHUS: Yes, Your Honor. I have
23 actually had some personal experience with that too.
24 In fact, in my direct testimony, I won't ask you to
25 pull it up now for time considerations, but if you

1 refer to the testimony with my Exhibit 429 that
2 describes the instrumentation in the wetlands that
3 basically should have been established. This was
4 referring back to a SWFWMD site that I actually did my
5 doctoral research on. They discussed the fatal flaws
6 in their model because they did not in fact instrument
7 the wetlands prior to the withdrawals that they
8 initiated at that site.

9 So it will basically give you the
10 background of what should have been done in those
11 wetlands before they even applied for this permit.
12 They should have collected that background data before
13 they applied. In fact we heard testimony that there
14 is no stream on the property, in fact there is a
15 stream on the property and it's a sinking stream. Now
16 we know from the USGS wetlands data that all of those
17 wetlands are considered waters of the U.S. which means
18 they are connected --

19 JUDGE KARLIN: May I just stop you there?

20 DR. BACCHUS: Yes.

21 JUDGE KARLIN: You testified there is a
22 stream on the property?

23 DR. BACCHUS: Yes, Your Honor. Yes, Your
24 Honor.

25 JUDGE KARLIN: Do you have personal

1 observations of this?

2 DR. BACCHUS: Well, I have been on-site as
3 you know, Your Honor, I was out there with you.

4 JUDGE KARLIN: Yes.

5 DR. BACCHUS: I reviewed the Corps of
6 Engineers data. I actually used it to make these
7 determinations for the State of Florida for almost 10
8 years that's what I did.

9 JUDGE KARLIN: Okay, that's the basis for
10 your testimony under oath that there is a stream on
11 the site?

12 DR. BACCHUS: Yes, Your Honor because I
13 was on the site. I was --

14 JUDGE KARLIN: Did you see a stream?

15 DR. BACCHUS: I saw the wetlands that are
16 the upper reach of that stream.

17 JUDGE KARLIN: We saw wetlands.

18 DR. BACCHUS: Right, so if those wetlands
19 had been instrumented --

20 JUDGE KARLIN: Is all wetlands a stream?

21 DR. BACCHUS: They are the upper reach of
22 that stream.

23 JUDGE KARLIN: Always all wetlands are a
24 stream?

25 DR. BACCHUS: No, Your Honor.

1 JUDGE KARLIN: Every wetland is a stream?

2 DR. BACCHUS: No, Your Honor. The
3 wetlands on that side are. The Army Corps of
4 Engineers has already shown they are connected to the
5 navigable waters.

6 JUDGE KARLIN: Is there a document from
7 the Army Corps of Engineers that says there is a
8 stream on that side?

9 DR. BACCHUS: No, Your Honor. They show
10 that they are navigable waters which means that the
11 wetlands --

12 JUDGE KARLIN: No, no. Wetlands can be
13 covered by the Corps of Engineers but it doesn't mean
14 it is navigable water.

15 DR. BACCHUS: Yes, sir. They showed some
16 small areas of isolated wetlands and then the rest of
17 the wetlands they showed as connected wetlands. So I
18 referred to their document. I referred to the maps
19 that I normally would review for the State of Florida
20 when I would make those determinations.

21 What is happening is those wetlands during
22 the high rainy season they stage up, they flow into
23 that swallet across the street that we submitted the
24 video of showing the water going down the swallet.
25 Then they resurface and come up as the south branch of

1 Spring Run which exits from King Springs that we saw
2 during our site inspection. So they merge in a fork.
3 It flows actually northwest then north then joins
4 Spring Run and continues to the Gulf.

5 JUDGE KARLIN: Okay.

6 Is there anything more, Dr. Charbeneau?

7 JUDGE CHARBENEAU: (Non-verbal response.)

8 JUDGE KARLIN: All right thank you
9 witnesses for your testimony. We are now finished
10 essentially with topic number 2 groundwater modeling.
11 We will now have a break wherein you can submit
12 proposed questions that you think we might add or ask.
13 Please do that in writing. We will break until about
14 20 of and reconvene. Hopefully you will have those
15 questions for us and then we will probably ask those
16 questions and then take our lunch break I think at
17 that point.

18 But, okay, we are adjourned until twenty
19 of. Thank you.

20 (Whereupon, the above-entitled matter went
21 off the record at 11:27 a.m. and resumed at 11:40
22 a.m.)

23 JUDGE KARLIN: Please be seated.

24 The Atomic Safety and Licensing Board is
25 now reconvening in the evidentiary hearing on the

1 matter of Progress Energy's application to construct
2 and operate two nuclear power plants in Levy County.

3 We have received some suggested questions
4 from the Intervenors. We did not receive any from PEF
5 or the staff. So we will ask a few of those questions.

6 Could we ask Mr. Lehnen to take the stand
7 please? I keep getting that wrong, sir. I am sorry.
8 Could you give it to me one more time?

9 MR. LEHNEN: I think Lennon is fine.

10 JUDGE KARLIN: Lennon. You are giving up
11 on us I see. Fair enough.

12 MR. LEHNEN: Actually my great
13 grandfather changed it from Lennon to Lehnen.

14 JUDGE KARLIN: I thought it was like John
15 Lehnen the singer guy, you know.

16 Please I ask you to remember that you are
17 under oath, sir.

18 MR. LEHNEN: Yes.

19 JUDGE KARLIN: Several questions from Dr.
20 Charbeneau is the designated questioner.

21 JUDGE CHARBENEAU: Mr. Lehnen, when you
22 were doing the recalibration of Model M2 you did have
23 measured transmissivity values available from the
24 pumping tests at least?

25 MR. LEHNEN: Yes, we did of the northern

1 property.

2 JUDGE CHARBENEAU: And as I -- I think I
3 understand how PEST works. You can set targets and
4 you are using primarily heads as the targets.

5 MR. LEHNEN: We were using exclusively
6 heads as the targets.

7 JUDGE CHARBENEAU: So the question was
8 going to be did you use any of those measured
9 transmissivity values and specify those as targets as
10 well?

11 MR. LEHNEN: When we recalibrated the
12 model we constrained PEST to the values that were in
13 the Model 1 but we did not constrain it to any
14 particular location and any particular transmissivity.
15 So we allowed it to calibrate freely within the
16 constrained range of values across the model domain.

17 JUDGE CHARBENEAU: Did you do a post-audit
18 to compare how the model pulled out a transmissivity,
19 its value from the model compared with the measured
20 from the transmissivity test?

21 MR. LEHNEN: We have looked at what the
22 results of the Model 2 gave us compared to the field
23 data that we had and the Model 1 values. What we have
24 found was very large differences between the field
25 data and the Model 1 values especially in the area of

1 the site.

2 JUDGE CHARBENEAU: Of the transmissivity
3 values?

4 MR. LEHNEN: Of the transmissivity values.

5 JUDGE CHARBENEAU: And with Model 2, same
6 type of a thing?

7 MR. LEHNEN: Well, what I was referring to
8 was Model 2. It was very different from the values in
9 Model 1. I guess as I stated previously Model 1
10 transmissivity in the northern property was very close
11 to what we measured in the field.

12 JUDGE CHARBENEAU: I must have
13 misunderstood you. I thought you were talking about
14 the big differences with Model 1. It is actually it
15 was Model 2 that had large differences and not Model
16 1.

17 MR. LEHNEN: Yes, yes, I'm sorry. I
18 guess I misunderstood the question.

19 JUDGE KARLIN: Before you -- PEST, you
20 referred to PEST. That's an acronym for the, Ms.
21 Wheeler could you tell us what that is?

22 MR. LEHNEN: It's an acronym for Parameter
23 Estimation Simulation Tool.

24 JUDGE KARLIN: So P-E-S-T.

25 MR. LEHNEN: PEST.

1 JUDGE KARLIN: Okay. Thanks.

2 JUDGE CHARBENEAU: In your calibration for
3 Big and Little King Springs; did you have any real
4 data from the site or was your data based simply on
5 the information from the Springs of Florida
6 documentation?

7 MR. LEHNEN: We had the data from the
8 Springs of Florida publication. There was no direct
9 measurement of flow from those springs that are very
10 small springs.

11 JUDGE CHARBENEAU: Do you recall when you
12 did the transient maximum pumping simulations, how did
13 the predicted flow in Big and Little Springs change?

14 MR. LEHNEN: We did not look at the flow
15 in those springs or the flux in those drain cells.
16 What we did look at were the drawdown contours as a
17 result of that maximum day pumping rate for one week.
18 And we saw that the tenth of a foot drawdown did not
19 reach anywhere near the springs so we assumed that the
20 flow rate from the spring would be unchanged.

21 JUDGE CHARBENEAU: That's the only
22 questions. Thank you.

23 JUDGE KARLIN: Okay. Dr. Baratta, any
24 questions?

25 JUDGE BARATTA: No.

1 JUDGE KARLIN: All right. We have
2 finished -- Thank you, Mr. Lehnen.

3 MR. LEHNEN: Thank you, sir.

4 JUDGE KARLIN: We have now, I think,
5 completed topic number 2 the groundwater modeling. It
6 is 15 of 12:00. This seems like a reasonable time to
7 take an early break for lunch. We will reconvene at
8 12:45.

9 Now, this time I think we are going to
10 change the order and perhaps have the applicant
11 witness panel come up first because -- well, there are
12 a couple of reasons. It might be more efficient for
13 us to proceed that way.

14 And so we will adjourn now and reconvene
15 at 12:45. Thank you.

16 (Whereupon, the above-entitled matter went
17 off the record at 11:46 a.m. and resumed at 12:45
18 p.m.)

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

2 (12:45 p.m.)

3 JUDGE KARLIN: Please be seated.

4 MS. CURRAN: Judge Karlin?

5 JUDGE KARLIN: Let me get on the record
6 first and then I will entertain questions.

7 This is Alex Karlin, the Atomic Safety and
8 Licensing Board is now reconvening in the matter of
9 Progress-Levy's application.

10 Yes, Ms. Curran?

11 MS. CURRAN: Mr. Davies needs to be at the
12 airport by 6:30 in order to get a flight home that
13 gets him back to Knoxville in time and he has a
14 commitment tomorrow that he has to fly out town for.
15 Is there any chance that we could release him by 4:30?
16 He thinks that if he is finished by then that he can
17 make it to the airport.

18 JUDGE KARLIN: Yes, I think we can
19 accommodate that.

20 MS. CURRAN: Thank you.

21 JUDGE KARLIN: We will try to certainly.

22 At this point we are going to move to the
23 third major topic that we want to ask questions on and
24 the topic is: Environmental Monitoring and
25 Mitigation/Alternative Water Sources or Supply.

1 We are going to depart from the normal
2 sequence and ask that we have the witnesses from the
3 Applicant start on this matter. And, therefore, we
4 would ask Dr. Dunn and Mr. Hubble, we believe those
5 are the witnesses that could be most helpful on this
6 topic for us; to take the stand.

7 Could you gentlemen, raise your right
8 hand. Do you swear or affirm that the testimony you
9 are about to give is the truth?

10 DR. DUNN: I do.

11 MR. HUBBLE: I do.

12 Whereupon,

13 DR. WILLIAM J. DUNN and PETER G. HUBBELL,
14 were called as witnesses and, having been first duly
15 sworn, were examined and testified as follows:

16 JUDGE KARLIN: And for the record, could
17 you identify yourself and your employer.

18 DR. DUNN: Yes. I'm Bill Dunn with DSB
19 Consultants.

20 MR. HUBBLE: I am Peter Hubble with Water
21 Resource Associates.

22 JUDGE KARLIN: Now, Mr. Hubble, could you
23 explain your -- as I understand it you are the former
24 director of the Southwest Florida Water Management
25 District?

1 MR. HUBBLE: Yes, Judge Karlin, I am.

2 JUDGE KARLIN: And how long did you occupy
3 that position?

4 MR. HUBBLE: I was with Southwest Florida
5 Water Management District for a total of 19 years. My
6 last nine years was as the executive director.

7 JUDGE KARLIN: And, Mister, Dr. Dunn, that
8 is correct, Dr. Dunn?

9 DR. DUNN: That's correct, yes, Judge.

10 JUDGE KARLIN: You are not a modeler. You
11 basically took the output of the models and provided
12 your evaluation as to the environmental impacts you
13 think that that model output would cause in this
14 environment; is that basically right?

15 DR. DUNN: That is correct.

16 JUDGE KARLIN: Okay. Great. Well, this
17 topic is focused on the State of Florida's conditions
18 of certifications. Now, we have Exhibit PEF005, which
19 constitutes State of Florida Department of
20 Environmental Protection conditions of certification
21 and it indicates that it was modified January 25,
22 2011. Is that the most recent modification of what we
23 will call the COC?

24 MR. HUBBLE: Yes, sir. I have a copy that
25 is modified January 25, 2011; a PEF Exhibit dated June

1 26, 2012.

2 JUDGE KARLIN: Right. That's the date it
3 was submitted into evidence. So that's a different
4 date. I understand that.

5 MR. HUBBLE: Correct.

6 JUDGE KARLIN: And in the -- we are going
7 to refer to that as the COC and on page 42 of the COC
8 -- we don't need to bring that up -- it specifies,
9 quote, "an environmental monitoring plan shall be
10 submitted no less than three years prior to any
11 production well use in excess of 100,000 gallons per
12 day annual average."

13 Now, Mr. Flyntz, if you could turn to, I
14 believe it is PEF Exhibit 305. Let me ask -- I'm not
15 sure which one of you I should ask. Perhaps, Dr.
16 Dunn, is that the environmental monitoring plan
17 referred to in page 42 of the COC?

18 DR. DUNN: Just give me a minute. Yes,
19 that is.

20 JUDGE KARLIN: And it is a CH2M HILL tech
21 memo approval form and the tech memo title is, quote,
22 "Levy Nuclear Plant Well Field Environmental
23 Monitoring Plan," close quote. Could you --

24 DR. DUNN: That is correct.

25 JUDGE KARLIN: Could you scroll down a

1 little bit, Mr. Flyntz?

2 MR. FLYNTZ: (Complies.)

3 JUDGE KARLIN: Up to the page.

4 MR. FLYNTZ: (Complies.)

5 JUDGE KARLIN: And that was approved, it
6 shows approval date 5/29/2012, that means May 29th of
7 this year, right?

8 DR. DUNN: That is the date. That is
9 correct, sir.

10 JUDGE KARLIN: Right. Has that plan been
11 submitted to the Southwest Florida Water Management
12 District or the Florida Department of Environmental
13 Protection?

14 DR. DUNN: Yes.

15 MR. HUBBLE: No, it has not, Judge Karlin.
16 It is still a draft document.

17 JUDGE KARLIN: Okay. I just wanted to
18 find out. So it hasn't been. Has it been submitted
19 to any governmental agency?

20 MR. HUBBLE: I believe there have been
21 some early drafts that have been submitted. Comments
22 have been received primarily from the U.S. Army Corps
23 of Engineers and the NRC staff. And our Staff has been
24 working to revise that document based on those
25 comments. And we anticipate, I believe, submitting

1 that back before the end of the year.

2 JUDGE KARLIN: So preliminary or drafts of
3 this document have been shared with the U.S. Army
4 Corps of Engineers?

5 MR. HUBBLE: Yes.

6 JUDGE KARLIN: And with the Nuclear
7 Regulatory Commission Staff?

8 MR. HUBBLE: Yes.

9 JUDGE KARLIN: And with the Florida
10 Department of Environmental Protection Staff?

11 MR. HUBBLE: I am not positive of that.

12 JUDGE KARLIN: And who submitted these?
13 I mean was it you or someone else?

14 MR. HUBBLE: As --

15 JUDGE KARLIN: CH2M HILL?

16 MR. HUBBLE: CH2M HILL is responsible for
17 that.

18 JUDGE KARLIN: Okay. And you are not with
19 CH2M HILL?

20 MR. HUBBLE: No, I am not.

21 JUDGE KARLIN: And to the -- maybe I asked
22 this, the Florida Department of Environmental
23 Protection you are not sure?

24 MR. HUBBLE: I'm not sure of that.

25 JUDGE KARLIN: And the Southwest Florida

1 Water Management District have they seen any draft of
2 this?

3 MR. HUBBLE: I can't answer that question.

4 JUDGE KARLIN: Okay. And when was the
5 first draft of this I'm going to call it the
6 environmental -- well, let me ask. Back up a little
7 bit. Up to the top, Mr. Flyntz.

8 MR. FLYNTZ: (Complies.)

9 JUDGE KARLIN: Is this the environmental
10 monitoring plan or is it just sort of an outline for
11 the environmental monitoring plan?

12 MR. HUBBLE: This is a draft of what the
13 environmental monitoring plan will look like. It is
14 a draft of what ultimately will be submitted for the
15 agencies for approval.

16 JUDGE KARLIN: And when did NRC get its
17 first look at any draft of this EMP?

18 MR. HUBBLE: I can't give you a specific
19 date on that. I apologize.

20 JUDGE KARLIN: Was it before or after
21 April 27, 2012, when the FEIS was issued?

22 MR. HUBBLE: I don't have an answer for
23 you on that either. I was brought in to take a look
24 at the EMP and to assist probably I think around the
25 May/June time frame of this year.

1 JUDGE KARLIN: Do we have a witness here
2 from CH2M HILL who is focused on this? Someone who
3 has already presented testimony, of course.

4 MR. O'NEILL: Dr. Griffin can likely
5 answer that question. He is with CH2M HILL.

6 JUDGE KARLIN: Okay. Perhaps you could
7 come up, Dr. Griffin. Would you please? I admonish
8 you to remember you are still under oath, sir, do you
9 acknowledge that?

10 DR. GRIFFIN: Yes, sir.

11 JUDGE KARLIN: Thank you. Yeah, come on
12 up.

13 MR. O'NEILL: You may have to stay there.

14 JUDGE KARLIN: Yes, you have to stay there
15 now.

16 DR. GRIFFIN: I didn't bring my folder.

17 JUDGE KARLIN: Oh, okay, well. So, Dr.
18 Griffin, do you know to whom this EMP or any version
19 of it, which agencies it has been submitted for early
20 review?

21 DR. GRIFFIN: Yeah, let me clarify that as
22 a consultant for Progress Energy. Progress Energy
23 submits these to the agencies.

24 JUDGE KARLIN: Yes, and unfortunately and
25 strangely enough we have no witnesses from Progress

1 Energy who have been presented here in this hearing.

2 DR. GRIFFIN: I would refer back to Dr.
3 Dunn's testimony where he actually listed those on
4 answer 31.

5 JUDGE KARLIN: Yes.

6 DR. GRIFFIN: Those were the dates. I'm
7 aware of those, the submittal and we have received
8 comments from the Corps.

9 JUDGE KARLIN: Those, when you say those
10 were the dates, what dates were they?

11 DR. GRIFFIN: The dates in his answer, in
12 this exhibit.

13 JUDGE KARLIN: Okay.

14 DR. GRIFFIN: PEF 300, on page 30, answer
15 31.

16 JUDGE KARLIN: And what -- Do you have
17 those dates in front of you?

18 DR. GRIFFIN: It is April 5th, 2012,
19 that's when it is. The first draft was sent to the
20 three agencies, the Corps, NRC, and what we call
21 SWFWMD, Southwest Florida Water Management District.

22 JUDGE KARLIN: Okay. April 5, 2012.
23 Okay. Good. All right.

24 DR. GRIFFIN: Yes sir. And there has been
25 a revision submitted in May also. So they have seen

1 at least a couple drafts?

2 JUDGE KARLIN: The May 29th one is one we
3 are looking at here is the most recent; is that
4 correct?

5 DR. GRIFFIN: Yes, sir.

6 JUDGE KARLIN: Mr. Flyntz, could you take
7 us to page 12, I think it is of this EMP Exhibit
8 PEF305.

9 MR. FLYNTZ: (Complies.)

10 JUDGE KARLIN: Yeah, blow that up a little
11 bit.

12 Okay. On that page there is a statement,
13 which I just sort of need to understand what it means
14 "A minimum of 12 monitoring transects will be
15 establish prior to the baseline monitoring." What's
16 a transect? Let me ask, Dr. Dunn?

17 DR. DUNN: It is a linear, essentially a
18 line sampling plot. So in these wetland situations
19 you typically will have it run from a deep area in the
20 wetland to an upland edge and you will array your
21 sampling points whether it's for photographic
22 documentation or sampling soils or vegetation
23 parameters or installing the hydrologic monitoring
24 devices will be arrayed along that line. So transect
25 is a line that is established and surveyed in at the

1 individual locations.

2 JUDGE KARLIN: Okay. And the two termini
3 of the line are what? I mean where does the line
4 start? Where does the line end?

5 DR. DUNN: Well, this we finalized in the
6 final version of the plan but typically they will run
7 from the deep part of the wetland is the end, because
8 you usually start walking into the wetland from the
9 upland side and then the start is at the upland edge
10 of the wetland.

11 JUDGE KARLIN: Okay. And what is -- could
12 we say it's a monitoring point or a monitoring line?

13 DR. DUNN: It is a monitoring line, sir,
14 yes. That's correct.

15 JUDGE KARLIN: And could you articulate
16 what is monitored for at each of these or what the EMP
17 proposes to be monitored for at each of these
18 transects?

19 DR. DUNN: Yes, we can go and I think it
20 would be helpful to look at page 24 of this exhibit,
21 table 1.

22 JUDGE KARLIN: Okay.

23 DR. DUNN: Table 1 is a summary of
24 monitoring parameters included in the plan --

25 JUDGE KARLIN: Well, now, wait a section.

1 Wait a second. If I may. Section 3.2 of this
2 environmental monitoring plan, can you go to the
3 beginning of that, Mr. Flyntz?

4 MR. FLYNTZ: (Complies.)

5 JUDGE KARLIN: I am not sure where it
6 appears exactly. 3.2 there it is; assessment areas
7 and this is -- and then is there -- okay. And then go
8 to 3.3.

9 MR. FLYNTZ: (Complies.)

10 JUDGE KARLIN: I had a copy of this in my
11 Federal Register box. Hydrologic monitoring, which I
12 understand may be different than environmental
13 monitoring; is that correct?

14 DR. DUNN: No, the environmental
15 monitoring plan, Judge Karlin, includes hydrologic
16 parameters and ecological --

17 JUDGE KARLIN: Right. I understand it
18 includes both, but apparent there is some distinction
19 between environmental monitoring and hydrologic
20 monitoring.

21 DR. DUNN: Not in my mind, sir.

22 JUDGE KARLIN: Oh, okay. Then why are
23 they in two different sections? All right. Well,
24 let's go to the page you wanted.

25 DR. DUNN: Again, that would be page 24

1 and table 1, which is the top third or half of the
2 page.

3 JUDGE KARLIN: All right.

4 DR. DUNN: So this is the summary, and if
5 we look starting on the left hand column, which lists
6 the different monitoring parameters and you can see
7 the row heading break out as the first five or six
8 rows deal with the hydrologic parameters.

9 JUDGE KARLIN: Right.

10 DR. DUNN: And there are the wetland
11 parameters, which are more the ecological focus in
12 terms of vegetation, funnel, species monitoring and
13 then the last element down there the lower third of
14 the table includes the physical survey. We're
15 actually going in recording elevations and documenting
16 conditions for the soil, but also installing the wells
17 and staff gauges and those all have to be surveyed by
18 professional surveyors.

19 JUDGE KARLIN: Okay. So those are the
20 monitoring parameters, the collection frequency and
21 the reporting frequency for each -- for the monitoring
22 that is going to occur at each of these transacts; is
23 that --

24 DR. DUNN: That is correct.

25 JUDGE KARLIN: -- proposed under this

1 plan.

2 DR. DUNN: Yes.

3 JUDGE KARLIN: And along this line each
4 transect consists of a line will there just be one
5 monitoring point on the line or one at the deep end of
6 the wetland and one at the driest end of the wetland
7 or -- you know, for example, is it just one monitoring
8 point on that line for each of these parameters?

9 DR. DUNN: I think there is a diagram page
10 20 in that same exhibit back a couple pages.

11 JUDGE KARLIN: All right. Let's go to
12 that if we can.

13 MR. FLYNTZ: (Complies.)

14 JUDGE KARLIN: Okay.

15 DR. DUNN: So this would show cross
16 section with the deeper end of the wetland on the
17 right and the upland edge on the left. So we can see
18 on the upland edge there is a surficial aquifer
19 system, monitor well installed. On the lower end
20 there is both a piezometer, which is, again, a shallow
21 well and a staff gauge, which is a big ruler. It's
22 stuck in the ground to survey the aquifer.

23 JUDGE KARLIN: The ENP says that 1 SAS
24 monitoring well will be installed at each of the
25 transects. SAS; surficial aquifer system monitoring

1 well; is that what that means?

2 DR. DUNN: That's correct.

3 JUDGE KARLIN: And what will it monitor
4 for water quality, water level? What will it monitor
5 for?

6 DR. DUNN: The latter, Judge Karlin. The
7 purpose is to monitor water level.

8 JUDGE KARLIN: Water level, okay. And the
9 frequency of the monitoring is laid out in the chart
10 that you just directed our attention to?

11 DR. DUNN: That's correct.

12 JUDGE KARLIN: Now, let's see. There is
13 I believe a -- page 13 of PEF305 please. I believe
14 that gives us a -- MR. FLYNTZ: Did you say 13 or
15 14?

16 JUDGE KARLIN: Go to the one further up,
17 12 perhaps. Okay, no. Let's go to the first map. As
18 I understand it this figure it's page -- what page are
19 we on, Mr. Flyntz?

20 MR. FLYNTZ: 13.

21 JUDGE KARLIN: 13 of the environmental
22 monitoring plan, shows the location, the proposed
23 location of some of these transcripts [sic], is that
24 correct?

25 DR. DUNN: The transects, Judge Karlin.

1 JUDGE KARLIN: The transects. Did I say
2 transcripts?

3 DR. DUNN: These are initially proposed
4 locations.

5 JUDGE KARLIN: And there are 12 transects
6 proposed?

7 DR. DUNN: That is correct, also.

8 JUDGE KARLIN: Has there been any feedback
9 from any of the agencies as to whether 12 transects is
10 enough?

11 DR. DUNN: I am not aware of any feedback.
12 My experience, and I do have a lot of experience in
13 doing this, is that this number of transects for this
14 level of withdrawal are more than adequate.

15 JUDGE KARLIN: And I believe the ENP says
16 at page 12 that 7 transects will be near field
17 transects located within 2,000 feet of the production
18 wells. And that is shown by the, let's say, yellow
19 circle on this exhibit, correct?

20 DR. DUNN: Yes, that's correct.

21 JUDGE KARLIN: And the two transects will
22 be far afield monitoring transects located between
23 2,000 and 5,000 feet; is that correct?

24 DR. DUNN: That is also correct.

25 JUDGE KARLIN: And there will be a minimum

1 of 3 background transects located outside of the 5,000
2 foot area, or outside of the drawdown influence,
3 correct?

4 DR. DUNN: Correct.

5 JUDGE KARLIN: And this is something that
6 is being submitted to the Southwest Florida Water
7 Management District and the Florida Department of
8 Environmental Protection for their approval
9 ultimately?

10 DR. DUNN: Correct, and the Corps of
11 Engineers also.

12 JUDGE KARLIN: And the Corps. And is this
13 -- and Southwest Florida Water Management District's
14 submission that Progress made to them is based upon
15 Model 1, is it not

16 DR. DUNN: Could you repeat the question,
17 please, Judge.

18 JUDGE KARLIN: The Southwest Florida Water
19 Management District's COC was based upon either the
20 Regional Model or Model 1; is that correct?

21 DR. DUNN: It was based on Model 1.

22 JUDGE KARLIN: Based on Model 1. And the
23 NRC required; the NRC Staff required the Applicant to
24 redo Model 1 because they didn't think it was a good
25 fit, right? So there's another model there's Model 2.

1 Would the location of the wells that you are
2 proposing, or that have been proposed in this EMT
3 change if you used Model 2?

4 DR. DUNN: The locations would change but
5 probably not the overall array of 7 of these
6 transects, 3 of these and two of these. It will still
7 be near field, far field and outside the aerial
8 influence. But, yes, the location could change based
9 on the actual drawdown contours.

10 JUDGE KARLIN: Okay. The number would
11 probably remain the same, seven, two and three, but
12 the locations might change if you thought that Model
13 2 was better than Model 1?

14 DR. DUNN: That is my opinion, yes.

15 JUDGE KARLIN: And would it make a
16 difference in whether or not the Environmental
17 Monitoring Plan as proposed captured or identified the
18 existence of preferential pathways? Would it miss the
19 preferential pathways if the monitoring transects are
20 placed in the wrong spot?

21 DR. DUNN: No. These monitoring transects
22 and the shallow monitoring wells are not designed to
23 capture preferential -- that's not their purpose.

24 JUDGE KARLIN: What is their purpose?

25 DR. DUNN: The purpose is to monitor the

1 ecological parameters and the surficial aquifer system
2 on the wetland sites.

3 JUDGE KARLIN: Well, the Intervenors are
4 concerned with the potential environmental impacts of
5 the project and they suggest that the well field
6 drawdown to be in a star pattern with conduits that
7 might stand out further, these fingers or start points
8 might go out further and cause adverse environmental
9 impacts on points further away than what they think
10 that a uniform cone of depression would be. Will the
11 EMP -- does the EMP think about that at all about the
12 possibility of conduits?

13 DR. DUNN: It does not. The EMP is a
14 response to the predicted drawdowns from the model.
15 So if the model, basis of the model that SWFWMD
16 reviewed was Model 1 and their satisfaction with the
17 output of that model was -- they concurred with the
18 results as far as they were presented and they
19 developed the COC based on that.

20 JUDGE KARLIN: Well, much of the
21 significant portions of the FEIS seemed to say: we
22 recognize there is significant uncertainty associated
23 with the models, but we feel reassured by the fact
24 that there is an environmental monitoring plan out
25 there that will identify and discern any adverse

1 environmental impacts so that any potential adverse
2 impacts can be averted, or mitigated in time. That
3 sounds like you are saying, well, the environmental
4 monitoring plan is founded upon the very model which
5 we are -- which is highly uncertain.

6 DR. DUNN: Well, I have a different
7 interpretation.

8 JUDGE KARLIN: Okay.

9 DR. DUNN: The COCs were developed after
10 SWFWMD's review of Model 1.

11 JUDGE KARLIN: Right.

12 DR. DUNN: Model 1 showed and very small
13 drawdown effects that in my experience would typically
14 not be of great concern to SWFWMD but because of the
15 kind of profile that this project has, they included
16 monitoring and extensive monitoring program for this
17 very small withdrawal.

18 JUDGE KARLIN: That monitoring after the
19 fact?

20 DR. DUNN: No, I don't believe that it's
21 after the fact. But they -- So based on a very small
22 withdrawal and a very --

23 JUDGE KARLIN: When you say very small,
24 are you talking about 1.58 million gallons a day?

25 DR. DUNN: Yes, correct.

1 JUDGE KARLIN: Okay.

2 DR. DUNN: And a very limited extent of
3 drawdown they included a very extensive monitoring
4 plan. Now, it just so happens that they could use
5 model -- lend credence to Model 2 which there wasn't
6 a lot of testimony that actually supports that, you
7 know, that's happened earlier today. But the same
8 monitoring program will be adequate to detect a change
9 if Model 2 is a more accurate description or
10 prediction of the drawdowns that will result from the
11 operation of a well field.

12 MR. HUBBLE: Judge Karlin.

13 JUDGE KARLIN: Yes, Mr. Hubble.

14 MR. HUBBLE: If I could add to that. The
15 transects that are proposed in the EMP are just that
16 the proposed draft document. The ultimate decision on
17 how many and where these transects will be located
18 will be made by the agencies after field verifying
19 where these transects go. So this isn't fixed in
20 concrete.

21 JUDGE KARLIN: Right, I understand that.
22 In fact, that is part of the Intervenors' concerns is
23 that this is a target that or this is a plan that no
24 one knows what it will actually look like before it is
25 all said and done.

1 Let me ask this. Perhaps, Mr. Hubble, you
2 are the one to address this to. As I understand it
3 the Southwest Florida Water Management District uses
4 a 0.5 drawdown, half a foot drawdown in some sort of
5 criterion or threshold. Is that correct and can you
6 explain that?

7 MR. HUBBLE: That's correct. It's what
8 would be called a performance standard in the
9 regulatory program, the water use permitting program
10 under the Water Management District. And essentially
11 it has been based on a lot of research throughout the
12 Water Management District, looking at hydroperiods of
13 different types of wetlands. The type of wetlands
14 that we see out at LNP and it is a presumptive
15 performance criterion that if the predictive drawdown
16 is less than that, then the Water Management District
17 has reasonable assurance that there will be no
18 environmental impact.

19 JUDGE KARLIN: Okay. Now, it is correct,
20 isn't it that model 2 predicts a 2-foot drawdown?

21 MR. HUBBLE: In some areas that's correct.

22 JUDGE KARLIN: If model 2 is correct
23 shouldn't somebody tell the Southwest Florida Water
24 Management District that we just exceeded their half
25 a foot threshold?

1 DR. GRIFFIN: Sir, that's why they require
2 that aquifer performance testing beforehand.

3 JUDGE KARLIN: No, no, I'm talking about
4 there's the threshold. I want to address this to Mr.
5 Hubble; there is a half a foot threshold level. What
6 if it is two feet? What if the submission that PEF
7 made to Southwest Florida Water Management District
8 many years ago said that's going to be a 2-foot
9 drawdown. Would Southwest Florida Water Management
10 District say, oh, no permit, sorry or what would they
11 do? They do something.

12 MR. HUBBLE: Well, I think even before if
13 indeed we believed Model 2 was correct and there was
14 a greater drawdown, we would come to the Water
15 Management District with a different design for the
16 well field to minimize or lessen those impacts to
17 adjacent wetlands. Possibly it goes to more of the
18 adaptive management. We would go in with maybe more
19 wells, distribute the pumpage over a larger area,
20 lessen those impacts, make sure that it met the
21 performance criteria.

22 JUDGE KARLIN: But if Southwest Florida
23 Water Management District were told that it was
24 exceeded half a foot that indeed it was showing two
25 feet they might require something different be done.

1 Is that correct?

2 JUDGE BARATTA: Could I interrupt for a
3 second?

4 JUDGE KARLIN: Yeah, sure.

5 JUDGE BARATTA: I thought I heard
6 previously that Southwest Florida Water Management
7 District had, in fact, seen the result of Model 2, is
8 that -- could someone --

9 JUDGE KARLIN: Well, yeah, I know they
10 have seen it.

11 JUDGE BARATTA: And that would have
12 included that 2-foot; is that correct?

13 DR. DUNN: That is correct, Dr. Baratta.

14 JUDGE KARLIN: I understood that. But no
15 one submitted it to them as a formal document. There
16 was apparently a conference call where Southwest
17 Florida Water Management District was invited and sat
18 in on with regard to M2; is that right? Do you know,
19 Mr. Hubble?

20 MR. HUBBLE: I defer to Mr. Lehnen.

21 JUDGE KARLIN: Mr. Lehnen. Okay. Well,
22 I am quite confident someone referred to that. So I
23 understand the Southwest Florida Water Management
24 District may have heard of this, but I also understand
25 that the NRC Staff had said that Model 2 is a

1 significantly better fit for the actual field data
2 which is out there at this site. So some people may
3 say, well, I don't believe that actual field data. It
4 must be anomaly, but NRC Staff had relied, to some
5 extent, on Model 2. So my question again is -- I
6 think you have answered it, was that there could be a
7 significant difference if the NRC Staff is right and
8 Model 2 is the better model.

9 DR. DUNN: Well, Judge Karlin, I think, in
10 fact, why after their independent review NRC Staff
11 also very strongly embraced the COCs because the COCs
12 not only have an environmental monitoring plan, they
13 have an aquifer testing plan in there, there is the
14 AWS component, so there is a series of three very
15 powerful interlocking conditions that will assure
16 whether the drawdown scenario by operation of the well
17 fields is closer to a model 1 or Model 2. Those three
18 components of the COC will assure that adverse
19 environmental impacts do not occur.

20 MR. HUBBLE: If I can add?

21 JUDGE KARLIN: Yes, Mr. Hubble.

22 MR. HUBBLE: To me one of major components
23 of the monitoring plan is the aquifer performance
24 test. A lot of what we have discussed over the last
25 day-and-a-half is --

1 JUDGE KARLIN: Wait a second. Okay. Let
2 me stop you there. There is this thing called an
3 Environmental Monitoring Plan.

4 MR. HUBBLE: Correct.

5 JUDGE KARLIN: And that's PEF305, right?

6 MR. HUBBLE: Right.

7 JUDGE KARLIN: And then there's the thing
8 called the Aquifer Performance Test Plan, right?

9 MR. HUBBLE: (No verbal response.)

10 JUDGE KARLIN: And that's PEF304, right?

11 MR. HUBBLE: (No verbal response.)

12 JUDGE KARLIN: And both of them are big
13 long documents. Are you saying they are the same
14 thing?

15 MR. HUBBLE: No, I am not.

16 JUDGE KARLIN: Okay.

17 MR. HUBBLE: I misspoke. I said the EMP.
18 I should have said in the COC --

19 JUDGE KARLIN: Oh, okay.

20 MR. HUBBLE: -- the requirement for an
21 aquifer performance test well before the production
22 wells come on line will from my professional
23 experience, I believe the Water Management District
24 will answer a lot of the questions of Regional Model
25 versus Model 1, versus Model 2. The APT test has to

1 be done 5 years before these wells come into
2 production. All these questions about transmissivity
3 and leakage and all the aquifer characteristics that
4 we are talking about over the last day-and-a-half will
5 be addressed through the APT test.

6 If the APT comes back and shows that we
7 have been wrong plus or minus 20 percent the COC says
8 the model needs to be rerun based on those aquifer
9 characteristics. If the Water Management District
10 looks at that and says we underestimated, the
11 environmental impacts are worse, we are going to have
12 to go back and redo the EMP. Because the EMP where
13 Dr. Dunn has suggested locations for transects --

14 JUDGE KARLIN: Well, Okay. Let me ask on
15 the Aquifer Performance Test Plan is it correct to say
16 the purpose of that plan is to find out if Progress
17 Energy is going to get enough water for its use? Can
18 it get 1.58 million gallons a day or not? If it can't
19 get it, then there is a problem.

20 MR. HUBBLE: I would say that it is to
21 more accurately reflect the aquifer characteristics
22 that we used in the predictive modeling.

23 JUDGE KARLIN: Does the Aquifer
24 Performance Test Plan monitor environmental impacts in
25 wetlands?

1 MR. HUBBLE: The Aquifer Performance Test
2 Plan does not.

3 JUDGE KARLIN: All right. Does it monitor
4 environmental impacts on the Big King Spring if it is
5 adversely affected?

6 MR. HUBBLE: It does not. However, the
7 results of the APT test --

8 JUDGE KARLIN: Will tell you something.

9 MR. HUBBLE: -- are fed back into the
10 predictive analysis and we'll have a better
11 understanding well before any of the wells come into
12 production on the potential for impact to those
13 springs.

14 JUDGE KARLIN: Okay. All right. I think
15 I -- go ahead.

16 JUDGE BARATTA: Does the APT monitor then
17 the drawdown in monitoring wells?

18 MR. HUBBLE: Probably a better question
19 for Mr. Lehnert the specifics, but, again, the concept
20 which went behind the APT test is to -- basically to
21 put that well under stress and monitor usually through
22 monitoring wells how quickly that well recovers and
23 through that parameters that we have been discussing
24 here like transmissivity and leakage can be better
25 determined.

1 JUDGE BARATTA: I understand. Thank you.

2 JUDGE KARLIN: Maybe we could turn to
3 PEF305 page 16 and 17. Can you blow that up?

4 MR. FLYNTZ: (Complies.)

5 JUDGE KARLIN: Here we are turning to the
6 management threshold values. I believe that's at the
7 bottom of the page, perhaps. Oh, okay, that's it at
8 the very bottom, 3.3.6 data analysis page -- what page
9 are we on?

10 MR. FLYNTZ: 16.

11 JUDGE KARLIN: 16, last two lines
12 Hydrologic -- quote, "Hydrologic data collected during
13 the pre-construction base line period will be used to
14 establish management threshold values, which are
15 linked to a sequence of intervention measures designed
16 to prevent adverse effects on wetlands."

17 Who should address this, is it Dr. Dunn?
18 As I understand the EMP it talks about the management
19 threshold levels yet to be established and that there
20 are three different threshold levels. Could you
21 explain that for us?

22 DR. DUNN: That's correct, Judge Karlin.
23 There are three threshold levels proposed in this
24 document. And each is related to water level
25 measurements through time and tracking what's known as

1 the medium water level or in statistical jargon the
2 50th percentile or P50.

3 JUDGE KARLIN: P50, I saw that in there,
4 yes.

5 DR. DUNN: So that's what is being
6 assessed on a running average time. And based on the
7 detail research that SWFWMD has done over a long
8 period of time some of which that Mr. Hubble just
9 alluded to they have established a minimum flow level
10 --

11 JUDGE KARLIN: Wait a second if I may, Dr.
12 Dunn. Is there some -- they have established some
13 sort of -- you are talking about what SWFWMD had done,
14 right?

15 DR. DUNN: Correct.

16 JUDGE KARLIN: Is there a document that
17 reflects what you are saying or is this your memory?

18 DR. DUNN: There are extensive documents
19 but the monitoring -- this approach to the monitoring
20 is covered in what the District calls their WAP
21 procedure, Wetland Assessment Procedure.

22 JUDGE KARLIN: Okay. That's the exhibit
23 here.

24 DR. DUNN: So the thresholds start with
25 the MFL value, which is the number 1.8 feet less than

1 the historic normal pool, which roughly corresponds --

2 JUDGE KARLIN: MFL standing for?

3 DR. DUNN: Minimum flow level.

4 JUDGE KARLIN: Minimum flow level.

5 DR. DUNN: And the District, SWFWMD
6 established a minimum flow level for Cypress wetlands
7 based on a huge data set and extensive investigation
8 over now decades of Cypress wetlands. These
9 particular kinds of wetlands are the same ones as
10 found down on the LNP site. So there's huge data base
11 behind this that says to them when the P50 value --
12 when you look at your data is more than 1.8 feet less
13 than the normal pool elevation, which again, normal
14 pool equates to about the upland edge. That's when it
15 is more than 1.8 then they start to see some of these
16 kinds of wetlands be stressed.

17 So the first threshold in this proposed
18 sequence in the EMP is that value. Does it exceed
19 that data based -- if it gets beyond 1.8 we have a
20 concern and then it basically just breaks out. If it
21 gets much -- way beyond that, in this case up to 1.5
22 feet beyond that that's that third suggested threshold
23 and then the second threshold is just about in the
24 middle of that. So those are how it selects the
25 probability of risk. How the -- farther away from 1.8

1 feet for the P50 as the difference between the upland
2 end value the greater concern is the District would
3 have that harm might occur over the long term and
4 that's essentially what is captured in these three
5 suggested values.

6 JUDGE KARLIN: Oh, okay. Now if the
7 timing, I am thinking of timing now. If the first
8 threshold is exceeded, 1.8 minimum flow level below
9 whatever that gets reported to the Southwest Florida
10 Water Management District or the Florida Department of
11 Environmental Protection, which one or both?

12 DR. DUNN: To SWFWMD.

13 JUDGE KARLIN: SWFWMD and how soon does
14 that get reported to SWFWMD, one month, one year?

15 MR. HUBBLE: Judge Karlin, the hydrologic
16 data and the environmental data are reported back to
17 Water Management District annually. Some of the
18 information is actually submitted electronically, but
19 annually there has to be a report with both hydrologic
20 environmental data, statistical analyses that is done
21 on that data to determine whether or not there were
22 any trends. So that's reported annually.

23 JUDGE KARLIN: All right. So, let's say
24 management threshold value, management threshold 1 is
25 exceeding on January 2nd, that doesn't get reported

1 until December 31 of that year, a year later?

2 MR. HUBBLE: My experience, Judge Karlin,
3 is, again, that hydrologic data -- you had asked about
4 the hydrologic data being a part of the Environmental
5 Monitoring program. The Water Management District
6 probably relies more heavily on hydrologic information
7 to be the Canary in the mine shaft, for lack of a
8 better analogy --

9 JUDGE KARLIN: Well, isn't this hydrologic
10 information?

11 MR. HUBBLE: Yes, but you were asking if
12 -- the hydrologic data if for whatever reason water
13 levels fell water quality started to deteriorate those
14 would be the first signs that either there was a
15 regional issue or a localized issue associated with
16 the level. And those types of data are reported on a
17 monthly basis, the 10th of the month every year --
18 every month and those are reported electronically.
19 The Water Management District looks at that.

20 Unless there is a huge swing they may or
21 may not catch that but annually, there's an annual
22 report where they will look at that and if there is a
23 problem they will probably see a problem with the
24 hydrologic resource before the environmental resource
25 and that's when they jump in with adaptive management

1 working with Progress to essentially say, you know, we
2 are seeing some trends, water levels, water quality,
3 what can we do within those four wells to arrest that,
4 to turn that around.

5 JUDGE KARLIN: So if a threshold is
6 exceeded and says this first threshold is exceeded,
7 what does the District do? Is there some objectively
8 determinable action that we can expect to see from the
9 District or is it just adaptive management. Yes, Dr.
10 Dunn.

11 DR. DUNN: In the draft plan it says that
12 if you go beyond the first threshold and it's a
13 cumulative data. So you can get a -- you are looking
14 at the data that comes in every day, you are
15 summarizing it on a monthly basis and at some point
16 after several months you may say, you know, there's a
17 trend here that looks like we may exceed that 1.8
18 threshold value. Well, that could be because of
19 natural climatic conditions, it could be due to --

20 JUDGE KARLIN: So let me stop you there.
21 Let me stop you there. If the data shows it is
22 exceeding 1.8 drawdown that doesn't automatically mean
23 there is a problem being caused by this production
24 well field; is that what you are saying?

25 DR. DUNN: Correct.

1 JUDGE KARLIN: could be due to other
2 climatic issues or changes; is that correct?

3 DR. DUNN: That is correct.

4 JUDGE KARLIN: So there is a discussion
5 and professional debate that goes on, well, what's the
6 cause of this 1.8 drawdown?

7 DR. DUNN: That is correct, sir.

8 JUDGE KARLIN: So some judgment is used?

9 DR. DUNN: Well, professional judgment
10 like practicing scientists and engineers, yes.

11 JUDGE KARLIN: So how -- I am trying to
12 think of the time frame it takes for anybody to do
13 anything, if we hit one of these threshold values --
14 so there's a debate occurs, and negotiations occur
15 with the Southwest Florida Water Management District
16 as to whether or not this 1.8 value is really a
17 problem that is caused by global warming. Such a
18 discussion has to occur, right?

19 DR. DUNN: Yes, sir.

20 JUDGE KARLIN: How long does that take,
21 Mr. Hubble, is your experience that that's the kind of
22 discussion that is agonizing and the company will say
23 it is really not a problem and your agency will say,
24 well, I think it is and you argue about it for a
25 while?

1 MR. HUBBLE: Well, I can give you a couple
2 of examples where the Water Management District has
3 looked at either data that has been submitted on a
4 monthly basis or has made a decision on an annual
5 report. There are several instances within the
6 District probably within the last two years, rather
7 large public supply well fields. Polk County, the
8 northeast regional well field was -- one of the wells
9 was showing adverse impact to a wetland. The wetland
10 turned out to be -- it was not predicted to be as
11 leaky as it was but it was.

12 Water Management District came in, made
13 them abandon that well, very expansive, public supply
14 well, and actually move that location.

15 JUDGE KARLIN: How long did that process
16 take before the first canary died and they made them
17 move the well?

18 MR. HUBBLE: I don't know the specifics,
19 but I can tell you from my experience sitting on this
20 side of the table from the Water Management District
21 that they watch these things very, very closely.
22 Probably a good part of my practice is responding to
23 compliance letters from the Water Management District
24 for water use permit applicants that -- where there's
25 EMP or they are not reporting water usage or some

1 other condition the Water Management District is on.

2 JUDGE KARLIN: Yeah. I am just trying

3 --

4 MR. HUBBLE: And they move quickly

5 JUDGE KARLIN: I'm just trying to get a

6 handle of the time frame, the time frame that it

7 takes. I mean you get a -- go ahead, Dr. Dunn.

8 DR. DUNN: Well, there's a couple of

9 different aspects to the time frame. One is, just to

10 set the perspective, is that how, you know, how

11 quickly must one act, must the District act in order

12 to assure that adverse environmental impacts don't

13 occur. It is my experience and there's a good bit of

14 data backing it up including all this experimentation

15 and investigation and data analysis the District has

16 done for this adverse MFL that if you get a severe

17 enough change in the hydrology, the drawdown

18 characteristics such that you well exceed this 1.8, it

19 takes 5 to 10 or maybe more years before the

20 ecological system is truly showing signs of an adverse

21 and hydrologic change and reflecting or showing signs

22 of what we would call unacceptable impacts.

23 You can typically detect that in the

24 hydrologic record --

25 JUDGE KARLIN: Well, let me just stop you

1 there. Part of the Intervenor's concern is that under
2 this EMP is proposed the Applicant would be able to
3 request a termination of the Environmental Monitoring
4 Plan in 5 years. Sounds like you are saying that's
5 not long enough if it takes 5 to 10 years to show the
6 impacts in question?

7 DR. DUNN: I think I would defer to Mr.
8 Hubble on this, but the ability to -- for an applicant
9 to petition a change in their monitoring conditions is
10 a fairly standard part of every permit I have ever
11 seen.

12 JUDGE KARLIN: Well, that's okay. I don't
13 care that it is standard or not. If it takes 10 years
14 for the environmental impact to show up and you can
15 terminate it after for 6 years you are good to go and
16 nobody will even know there was an impact because the
17 monitoring plan just turned off.

18 MR. HUBBLE: But, Judge Karlin, I think
19 what we are saying is the hydrologic data will show
20 that there's an issue well ahead of the environmental
21 impact, as Dr. Dunn said.

22 JUDGE KARLIN: Right.

23 MR. HUBBLE: So if, for example, we were
24 seeing water levels, water quality, groundwater
25 levels, surface water quality deteriorating, that

1 would show up in that monthly, annual and five year
2 compliance reviews. If Progress came to the Water
3 Management District and asked to opt out of this
4 monitoring the Water Management District will look at
5 the hydrologic data and say there's no way you are
6 going to get out of this because we are seeing some
7 impact, whether it is regional or localized to the
8 surrounding area around these wells.

9 So I don't personally believe that that is
10 a possibility if they see deteriorating hydrologic
11 conditions.

12 JUDGE KARLIN: So if they see
13 deteriorating hydrologic conditions, I'm repeating
14 you, I guess, this will be indicia that would dissuade
15 the District from allowing the Applicant to terminate
16 the Environmental Monitoring Plan at the 5-year
17 juncture.

18 MR. HUBBLE: Correct. It would be -- to
19 me it would be an insurmountable hurdle that Progress
20 couldn't get over.

21 JUDGE KARLIN: Yeah, go ahead.

22 JUDGE BARATTA: As long as we are talking
23 about those 5-year -- there is also -- I saw in I
24 think it was the COC, a requirement that every five
25 years after you have to file a report describing the

1 environmental impact for the previous five years.
2 Something to that effect. Am I can't in my
3 recollection on that?

4 MR. HUBBLE: That's correct. There is an
5 annual report as we said that needs to be filed for
6 the preceding water year. It needs to be filed
7 January 1st of the next year.

8 The 5-year compliance, if I can simply put
9 it, compiles that 5 years of data, requires as the
10 annual reports do a number of statistical analyses
11 that need to be done to look at trends and ultimately
12 assure the Water Management District that this
13 pumpage, this permit, this license that they have to
14 use water is not adversely impacting the environment
15 or the water resources in and around the area.

16 So there's the compliance report, which is
17 a standard report included in most water use permits.

18 JUDGE BARATTA: My impression and maybe I
19 misread this, was that you could come in and petition
20 to stop the Environmental Monitoring Plan but you
21 still had to do that 5-year report. Is that --- did
22 I misunderstand that?

23 MR. HUBBLE: I don't -- if the
24 environmental monitoring was, let's say that after 10
25 years, 1.58 million gallons of water a day, there were

1 no hydrologic or environmental impacts and Progress
2 came in and said, look, we like to cease monitoring.
3 Then after that, there wouldn't be much to report. So
4 I don't think -- Mitch maybe you can help me --

5 JUDGE BARATTA: I thought there was still
6 a compliance report requirement, that's what was
7 confusing me.

8 DR. GRIFFIN: Compliance report, I mean it
9 is very typical in all environmental permits. The
10 permitted has to take the data. The permittee has to
11 report it. They have the permittee to analyze it for
12 data, and then they will just look at the reports.
13 That's a very common requirement. What they say here
14 is that in the end of 5 years we want a bigger report
15 with a longer trend analysis.

16 Often when we respond to these type
17 reports we keep those every year and we will give you
18 the past three data so -- with your report it's almost
19 the same as a 5-year report unless they ask for some
20 new type of analysis. But the condition in itself is
21 not unusual. Most of our permits are environmental
22 type permits.

23 JUDGE BARATTA: What I was looking for
24 was, was there a compliance report requirement after
25 one has terminated the Environmental Monitoring Plan?

1 MR. HUBBLE: Typically not.

2 DR. DUNN: I would say, Dr. Baratta, that
3 that would be very atypical but if we can let our
4 SWFWMD expert maybe thumb through the COC and look
5 that up.

6 JUDGE BARATTA: Yeah, it seemed to be if
7 I recall correctly it was in -- somewhere in the
8 section, you might want to check the section about
9 terminating the Environmental Monitoring Plan. It was
10 somewhere in there. Unfortunately I don't have a
11 reference to it.

12 I didn't mean to interrupt your train --

13 JUDGE KARLIN: No, no, I think that's a
14 good question. Let's try to get an answer to it.

15 JUDGE BARATTA: If it's going to take too
16 long, maybe we could --

17 JUDGE KARLIN: Yeah, maybe we can just --

18 JUDGE BARATTA: -- keep doing that during
19 a break.

20 JUDGE KARLIN: Okay. Yeah, during a break
21 perhaps.

22 Why don't we go to the COC if you could
23 bring that up, Mr. Flyntz. Page 42. It has some of
24 the relevant provisions that we have been talking
25 about.

1 Here is on page 42 -- let me address this
2 to Dr. Dunn, I guess, as a starting point. The
3 section of the COC that mandates, deals with, quote,
4 "environmental impacts monitoring and mitigation."
5 And it requires, quote, "an Environmental Monitoring
6 Plan shall be submitted no less than three years prior
7 to any production well use in excess of 100,000
8 gallons a day per year." And then it has to be
9 approved by the Southwest Florida Water Management
10 District -- well it has to be approved by whom; the
11 Florida Department of Environmental Protection or the
12 District? Who do you get that approval from? Or
13 maybe, Mr. Hubble?

14 MR. HUBBLE: I believe it is ultimately
15 FDEP but you go through the -- the submittal is
16 through SWFWMD.

17 JUDGE KARLIN: The District, okay, great.
18 Then towards the end of that photograph it says,
19 quote, "after five years of monitoring following
20 groundwater rise to using more than 1.25 million
21 gallons per day the licensee may request District to
22 release the licensee from monitoring," close quote.

23 So that's the 5-year request we were
24 talking about. Let's say no such request to terminate
25 is filed. How long does the Environmental Monitoring

1 Plan continue? I mean this is a proposal by the -- as
2 proposed here would it continue indefinitely or is
3 there a fixed term?

4 MR. HUBBLE: It would go indefinitely.

5 DR. GRIFFIN: The life of the license.

6 JUDGE KARLIN: Yeah, yeah, and these
7 licenses last? How much of the COC license, how long
8 is that? I mean the NRC license maybe 40 years?

9 DR. GRIFFIN: It's about the same I
10 believe.

11 JUDGE KARLIN: Well, okay.

12 MR. HUBBLE: Judge Karlin.

13 JUDGE KARLIN: Yes, sir.

14 MR. HUBBLE: Back to Dr. Baratta's
15 question about -- and I think it is a theoretical --
16 if Progress at some point comes back to the Water
17 Management District and says, look, we are not seeing
18 anything. We think monitoring is not required for the
19 future; can we be released from the Monitoring plan?

20 It doesn't specifically talk to the 5-year
21 compliance reports, but again, as we have talked
22 about, if we are not monitoring anymore hydrologic
23 conditions or environmental conditions, hey, there
24 wouldn't be much to report in those 5-year reviews.
25 So in my opinion if the monitoring requirements are

1 waived that condition for the 5-year compliance review
2 would be waived also.

3 JUDGE BARATTA: That's what I noticed.
4 They didn't talk about that?

5 MR. HUBBLE: Yes.

6 JUDGE KARLIN: Well, there might be other
7 compliance parameters that could be reported; is that
8 not, correct, Mr. Hubble?

9 MR. HUBBLE: That's correct. I wouldn't
10 expect that if this particular monitoring plan went
11 away that the Water Management District wouldn't come
12 back as part of the negotiation and condition the
13 permit in such a way that at least a minimal amount of
14 data is collected. But, again, I just don't -- I have
15 never seen in my experience, an applicant able to come
16 in after, particularly a short period of time like
17 five years and request to opt out of that requirement.
18 Not my professional experience.

19 JUDGE KARLIN: Okay. Can we go to page 43
20 of the COC, It's Exhibit PEF005, the bottom of page
21 43. Here we turn to the alternative water supply
22 implementation section. I want to talk about that a
23 little bit. The very end, the last line of this page
24 is where I start. Quote, "If adverse impacts are
25 detected or predicted through the Environmental

1 Monitoring as specified in section C above, or through
2 Aquifer Performance Testing or groundwater modeling as
3 specified in section C, condition 2."

4 What is the groundwater modeling they are
5 talking about? Perhaps I should ask Dr. Dunn.

6 DR. DUNN: In this case it would be -- if
7 the APT test is conducted and it shows as it states in
8 the COC and the determination is that there's a
9 transmissivity of the leakage values are more than 20
10 percent off from the model calibration then the model
11 will be recalibrated and model runs, the impact
12 analysis for the withdrawal be done. So this refers
13 to that model.

14 JUDGE KARLIN: So groundwater modeling is
15 done based upon the data obtained from the Aquifer
16 Performance Testing program?

17 DR. DUNN: Yes, sir.

18 JUDGE KARLIN: Okay. Let me continue in
19 that on page 44 I guess it is -- if you could drop a
20 little further down -- because now we get to the "if
21 then" the first phrase was, "If adverse impacts are
22 detected or predicted," blah, blah, blah, it then goes
23 to "Licensee shall either" -- "licensee shall either
24 mitigate such adverse impacts in accordance with the
25 plan submitted by the licensee and approved by the

1 District or by selecting and implementing an alternate
2 water supply project."

3 So let's focus on the first prong,
4 Licensee shall either do A or B. A is mitigate the
5 impacts in accordance with the plan submitted by the
6 licensee and approved by the District.

7 Presumably has that -- that plan has not
8 been generated yet because we don't know what the
9 adverse impacts are; is that right? I'll ask Mr.
10 Hubble.

11 MR. HUBBLE: Correct.

12 JUDGE KARLIN: So there is -- is there a
13 plan that we can look at now and say, ah, this is the
14 plan to mitigate the adverse impacts?

15 MR. HUBBLE: Not an alternative water
16 source plan --

17 JUDGE KARLIN: No, no, no. I'm not
18 talking about that. I'm talking about the others.

19 MR. HUBBLE: No. Because, again, we
20 believe there will be no adverse environmental impact.

21 JUDGE KARLIN: Well, that would be a happy
22 result, but if there are then something has to be done
23 supposedly under this proposed plan.

24 DR. DUNN: May I add something, Judge?

25 JUDGE KARLIN: Yes, Dr. Dunn.

1 DR. DUNN: In the EMP there is a section
2 that relates to mitigation that states if alternatives
3 have to be evaluated to reduce the drawdown impact
4 there are a number of ways -- district rule I believe
5 -- there's a number of ways SWFWMD typically would
6 address that impact some of them have already been
7 mentioned by Mr. Hubble that would be you shift the
8 wells, the well locations, can you pump from the lower
9 Florida as opposed to the upper Florida. There's a
10 whole array of, sort of, well field management
11 techniques that the Applicant is to typically consider
12 in having that discussion with the District. So there
13 is already an element of mitigation plan that's
14 included in the EMP.

15 JUDGE KARLIN: And is the adaptive
16 management strategy part of the -- those plans?

17 DR. DUNN: Yes, it is, sir. Section 4 of
18 the EMP --

19 JUDGE KARLIN: Right.

20 DR. DUNN: That is correct.

21 JUDGE KARLIN: Now, I mean the adaptive
22 management strategy and the plans here, is there any
23 way that this agency can assess whether or not those
24 mitigation plans are going to work or not now, before
25 we issue a license to build these two major power

1 plants? I will ask Mr. Hubble.

2 MR. HUBBLE: This agency meaning the Water
3 Management District?

4 JUDGE KARLIN: No, the agency being NRC.

5 MR. HUBBLE: Right.

6 JUDGE KARLIN: Because we are the ones who
7 have to make a decision now based upon, you know,
8 things that are going to happen in the future that are
9 not entirely -- at the moment, not -- clear.

10 MR. HUBBLE: Well, I can give you some
11 practical examples. Dr. Dunn mentioned some adaptive
12 management and there is a list of techniques that are
13 fairly well known in the literature and also are used
14 as part of the Water Management District strategy, the
15 adaptive management strategy. And they have been used
16 in many cases throughout the District probably the
17 most significant is in the Tampa Bay area. There were
18 large groundwater withdrawals that occurred over the
19 years, 155 million gallons of water a day. I kind of
20 look at this 1.58 million gallons a day and kind of
21 compare it to a large public supply groundwater
22 withdrawal of 155 million gallons a day. Adverse
23 impacts were seen. That groundwater withdrawal has
24 been reduced to 90 million gallons a day and new
25 sources of alternative water, service water and

1 desalinated water have been brought in.

2 But adaptive management has been the
3 underpinnings of solution for the Tampa Bay area being
4 able to rotate pumpage.

5 JUDGE KARLIN: Right. Well, just let me
6 stop you there though. I mean just think about it
7 from a public perspective. Adaptive management seems
8 to make a lot of sense if you are the regulator
9 because you know you are going to do the right thing,
10 this Southwest Florida Water Management District, and
11 from the Applicant's perspective because you know you
12 are going to do the right thing. So these two
13 entities get together and they figure out what needs
14 to be done when the time comes.

15 But if you are some member of the public
16 at the moment and you are trying to figure out some
17 assurance that something is going to be done, and the
18 right thing is going to be done, it seems to be kind
19 of a trust us, we are good guys, and we will figure it
20 all out, because there is nothing you can put your
21 hands on and say, this is what we will do if this
22 problem develops. And perhaps it is impossible. It
23 probably is impossible to figure out how you are going
24 to mitigate something when you don't think it is going
25 to happen and you don't know what it is anyway, but

1 there is an element of uncertainty right now.

2 MR. HUBBLE: I would agree with, you know,
3 your last statement that it is very difficult for us
4 to be able to come up with a fix when we don't really
5 know what the problem is or if there is going to be a
6 problem.

7 I think the trust factor, at least for the
8 Southwest Florida Water Management District is to take
9 a look at their track record for the last 15 years.
10 And it's a good track record of compliance. And
11 adaptive management techniques, the ability to go in
12 and work with applicants, work with folks that are
13 affected by adverse impacts and come up with a
14 meaningful solution to whether it's surface water
15 withdrawal or groundwater withdrawal they have a track
16 record.

17 JUDGE KARLIN: All right. And, Dr. Dunn,
18 did you want to speak to this?

19 DR. DUNN: Yeah, I wanted to add because,
20 Judge Karlin you are bringing out very important
21 aspects of the uncertainty and uncertainty management.
22 But, you know, uncertainty management is what adaptive
23 management is, that's when it is in place, it's been
24 developed to do.

25 JUDGE KARLIN: Well, that's what it is,

1 but that doesn't mean it is good or sufficient. It's
2 just what it is. It's we'll figure out what the
3 problem is when it happens and we will fix it.

4 DR. DUNN: In the post Aquifer Performance
5 Test the District and DEP and Progress will know a lot
6 more about the aquifer flow characteristics so that
7 will -- that itself will be helpful in trying to
8 decide what the potential mitigation measures would be
9 in the future. And those would be addressed in the
10 revision to the EMP.

11 Now, in terms of ultimate risk either
12 there is no impact of the well field operation and so
13 nothing has to be done, or there is significant impact
14 then that triggers the implementation of the AWS. So
15 in between, what are the mitigation measures which are
16 how to reduce to eliminate an impact that's detected
17 and those options will become clear after the APT and
18 any remodeling that needs to be done and that's the
19 essence of the various check points in a water use
20 permit.

21 JUDGE KARLIN: Right. Right.

22 DR. DUNN: It's the annual review of data,
23 or periodic 5-year review data, that's what the
24 District does.

25 JUDGE KARLIN: And I have to say that, you

1 know, I have studied the conditions of certification
2 it's a thorough long detailed and very professional
3 work product and it is clear to me that the Southwest
4 Florida Water Management District and the Florida
5 Department of Environmental Protection takes these
6 issues seriously and they have attempted to deal with
7 them seriously in these documents and I have no --
8 don't mean to in any way cast dispersions on what
9 appears to be a very professional and thoughtful job
10 that they are trying to do.

11 We are just in a situation we need to rely
12 -- the agency has said, this is the NRC Staff, has
13 said they are relying on these conditions and we are
14 here to try to evaluate whether or not that's a
15 reasonable thing to do.

16 Yes.

17 MR. HUBBLE: Judge, if I could add just to
18 look at the size of this particular permit, it's
19 highly unusual in my experience that for a pumpage at
20 a million-and-a-half gallons of water a day, 25
21 percent of that is a contingency.

22 JUDGE KARLIN: Right.

23 MR. HUBBLE: For these types of conditions
24 to be placed on this permit. Sometimes we get a
25 little loss in the size of the permit, but you know,

1 a small agricultural operation here in this part of
2 Florida would be about a million-and-a-half gallons a
3 day golf courses sometimes range between 250 and
4 350,000 gallons of water a day.

5 As I mentioned the Tampa Bay area is
6 currently groundwater total 160 million gallons of
7 water a day of which 90 is 90 million gallons a day of
8 groundwater. So this Conditions of Certification is
9 about as extensive as I have seen for this low of a
10 pumpage rate associated with well field.

11 JUDGE KARLIN: Okay. Now, let's focus
12 back on this paragraph because as I say there is an
13 "if" clause, which is "if adverse impacts are detected
14 then licensee shall either mitigate or shall -- or by
15 selecting -- quote "or by selecting and implementing
16 an alternate water supply project."

17 Who gets to choose whether you do an AWS
18 or you do mitigation, the Applicant or the licensee or
19 the District?

20 MR. HUBBLE: If you read a little further
21 it's a plan submitted by the licensee --

22 JUDGE KARLIN: So the licensee gets to
23 choose out of box first; the agency has to approve one
24 way or the other?

25 MR. HUBBLE: The licensee gets to develop

1 a plan and whether that's to go directly to AWS or
2 some other adaptive management, but ultimately it has
3 to be approved by the Water Management District.

4 JUDGE KARLIN: Right. Whatever happens
5 has to be approved by the District.

6 Just hold on for a second. Can you pull
7 up on Mr. Hubble's testimony, rebuttal testimony --
8 I'm sorry I don't have the exhibit number.

9 PARTICIPANT: PEF800.

10 JUDGE KARLIN: At 15. Okay, page 15.

11 MR. HUBBLE: Right.

12 JUDGE KARLIN: Page 15. Okay. Let's go
13 sort of to the top page. Well, we are not getting the
14 question. Let me go down to the bottom of the page
15 then answer is there.

16 At the bottom of this page, Mr. Flyntz,
17 let's go there.

18 MR. FLYNTZ: Page 15?

19 JUDGE KARLIN: Well, the page I just cited
20 you to, 15, right? Page 15 I believe you are
21 testifying there, Mr. Hubble, and you say:
22 "Alternative water supplies for LNP have been
23 considered including reclaimed water from local waste
24 water treatment facilities. The alternatives were
25 neither feasible nor economical."

1 Go up above that please, a little bit
2 higher. Okay. There we go.

3 MR. O'NEILL: Judge Karlin.

4 JUDGE KARLIN: Yes.

5 MR. O'NEILL: I just want to point out.

6 JUDGE KARLIN: Am I on the wrong exhibit?

7 MR. O'NEILL: No. This is redacted as per
8 your order.

9 JUDGE KARLIN: Oh, this is redacted?

10 MR. O'NEILL: Remember the --

11 JUDGE KARLIN: Yes, I remember the order.

12 MR. O'NEILL: That's that.

13 JUDGE KARLIN: Are we dealing with a
14 section that has been redacted?

15 MR. O'NEILL: Yes, you are.

16 JUDGE KARLIN: Okay. Well, that's very --

17 MR. O'NEILL: I mean you are the judge but
18 I need to point that out.

19 JUDGE KARLIN: Okay.

20 MR. FLYNTZ: I have the redacted version.

21 JUDGE KARLIN: Well, yeah, give me that.

22 I guess we are going to have a pagination issue here
23 and maybe that's been redacted. Okay. Yes, you are
24 right, that has been redacted. Okay. Let me just ask
25 you, has desalination been -- is that economically

1 feasible here?

2 MR. HUBBLE: In my professional opinion,
3 it is not.

4 JUDGE KARLIN: Why not.

5 MR. HUBBLE: In order -- let me back up
6 and put it in some context. Tampa Bay has built
7 probably the biggest continuous desal plant in the
8 nation now at about 25 million gallons of water a day.
9 The reason that that water is affordable is because
10 you can spread the cost of that more expensive water
11 over a relatively large rate base in Pasco,
12 Hillsborough, and Pinellas County.

13 In order to build a desal plan for a 1.58
14 million gallons of water a day, meet all the necessary
15 requirements for permitting water quality it can be a
16 very expensive proposition at that low a level to
17 produce.

18 JUDGE KARLIN: Is -- how much would it
19 cost approximately?

20 MR. HUBBLE: I don't have a number. I
21 have a number for the Tampa Bay area.

22 JUDGE KARLIN: No, no. Okay. Well, we
23 are talking about the COC a moment ago and page 43 and
24 it talked about well you can either do mitigation or
25 you can do an alternative water supply system or

1 solution. And my question or concern is: Is that
2 illusory? Is there an alternative water supply option
3 here at levy proposed plant, and I was concerned that
4 desal, which was discussed in the FEIS as the primary
5 alternative water supply system may not be
6 economically or any way else feasible.

7 Dr. Dunn, what is -- do you have any
8 thoughts on this or assessment?

9 DR. DUNN: I haven't looked at the -- I
10 haven't done any review of the costs. So from a, you
11 know, technical feasibility standpoint is desal
12 technically feasible, I would say, yes.

13 JUDGE KARLIN: Yes.

14 DR. DUNN: Are there other options that
15 would be technically feasible, too, and then you have
16 to do a cost comparison, yes.

17 JUDGE KARLIN: Okay. Now, back to Mr.
18 Hubble I mean desal is feasible at the municipal wells
19 because there's a large population perhaps who pay the
20 water bills and are the long suffering rate payers of
21 Progress Energy a large based that could also pay for
22 the desal program here?

23 MR. HUBBLE: As mentioned in the COC and
24 in the Environmental Monitoring Plan desal is an
25 alternative.

1 JUDGE KARLIN: Okay.

2 MR. HUBBLE: And will be -- it will be
3 looked at along with reclaimed water, spring water.

4 JUDGE KARLIN: Now, the Army -- Are you
5 involved at all have you ever interfaced with the Army
6 Corps of Engineers?

7 MR. HUBBLE: In regards to?

8 JUDGE KARLIN: To either this project or
9 other water-related projects in the Southwest Florida
10 Water Management District?

11 MR. HUBBLE: I have been involved with the
12 Corps of Engineers with the draft EMP.

13 JUDGE KARLIN: Okay. Because the corps of
14 engineers when they evaluate a project they evaluate
15 it and I believe the testimony reflect this and the
16 FEIS reflects this and they use a criterion known --
17 I will call as LEDPA.

18 Ms. Wheeler, this it L-E-D-P-A, least
19 environmentally damaging practicable alternative.

20 And as I understand it in order for the
21 Corps of Engineers to approve a proposed project they
22 need to find or they seek to find that the proposed
23 project is the least environmentally damaging
24 practicable alternative.

25 What's the environmental damage -- would

1 desalination cause more environmental damage than
2 these production wells or less environmental damage?

3 MR. HUBBLE: I have not looked at the
4 potential environmental impacts from a desal plant.
5 Here, again, as you look at the planning document that
6 needs to be submitted to the Water Management District
7 that would be a part of that consideration to the
8 District whether it was all, as I said, desal, storm
9 water, reclaimed water, whatever that alternative
10 supply would be.

11 JUDGE KARLIN: Okay. I think I have
12 covered most of my questions. Let me review my notes
13 here.

14 Any other questions, Dr. Charbeneau?

15 JUDGE CHARBENEAU: You have covered what
16 I had.

17 JUDGE BARATTA: I had one while you --
18 have you got one?

19 JUDGE CHARBENEAU: No. I said it had been
20 covered.

21 JUDGE BARATTA: From a selection of an
22 alternative water source perspective. Let's assume
23 for a moment that we tried the adaptive mitigation and
24 it didn't work. Let's say we have had some
25 environmental impact in a hypothetical situation.

1 When you get to looking at the alternative water
2 sources, can a source be ruled out strictly on cost
3 under Florida -- under the regulations that exist in
4 Florida?

5 MR. HUBBLE: My answer to that would be
6 no.

7 JUDGE KARLIN: Can it be just ruled out on
8 the basis of not being feasible?

9 MR. HUBBLE: Technically infeasible,
10 environmentally infeasible yes.

11 JUDGE BARATTA: But not cost wise?

12 MR. HUBBLE: I'm sorry.

13 JUDGE BARATTA: But not cost wise?

14 MR. HUBBLE: Just totally on cost wise
15 there is nothing in the law, there is nothing in the
16 Southwest Florida Water Management District rules that
17 say that cost would be a sole determinate of whether
18 or not an alternative water source would be accepted.

19 JUDGE KARLIN: But could it be part of the
20 determinate of whether or not it is acceptable? For
21 example, does feasibility incorporate a cost element?
22 Does practicability incorporate cost element?

23 MR. HUBBLE: Yes.

24 JUDGE KARLIN: So it could be, cost could
25 be a factor in the District deciding that an

1 alternative was not to be pursued?

2 MR. HUBBLE: It would be and is currently
3 a consideration when in every water use permit the
4 applicant is asked to look at the lowest quality
5 water, which may include AWS and cost is always a
6 factor that is looked at. But that's one factor among
7 many.

8 JUDGE BARATTA: Out of curiosity, this may
9 be outside your expertise, of the proposed nuclear
10 power plants in the United States, ones that recently
11 have been proposed, did any of them propose using
12 desalination? Are you aware of any?

13 MR. HUBBLE: I am personally aware, no.

14 DR. GRIFFIN: I am not.

15 DR. DUNN: I have no knowledge.

16 JUDGE KARLIN: Any further questions? I
17 think I have exhausted my list and so I think we can
18 thank panel and ask them to step down.

19 We will -- are going to take a brief
20 adjournment at the moment. We will be calling the
21 Staff witnesses next and so it's -- so why don't we
22 reconvene at 2:25 by the clock on the back.

23 We are now adjourned.

24 (Whereupon, the above-entitled matter went
25 off the record at 2:11 p.m. and resumed at 2:28 p.m.)

1 JUDGE KARLIN: Please be seated.

2 The Atomic Safety and Licensing Board is
3 now back in session on the evidentiary hearing for
4 Progress Energy's application for two nuclear power
5 plants in Levy County.

6 I would like to recall the Applicant's
7 witnesses for just one or two more questions and so,
8 could we bring that panel back up for just a moment or
9 two?

10 And I think, was it Mr. Davies who wanted
11 to leave by 4:00, Mr. O'Neill?

12 MR. O'NEILL: Mr. Davies is one of --

13 JUDGE KARLIN: Oh, I'm sorry, you had a
14 witness who --

15 MR. O'NEILL: Yes, I haven't asked yet but
16 I'll be happy to take this opportunity. Mr. --

17 JUDGE KARLIN: Well, somebody needed to
18 leave by --

19 MR. O'NEILL: Mr. Rumbaugh and Dr. Rizzo
20 are driving to Jacksonville to catch a plane and would
21 like very much to leave the same time that Mr. Davies
22 leaves.

23 JUDGE KARLIN: Okay. I think we are going
24 to be able to accommodate that. Great.

25 Whereupon,

1 DR. WILLIAM J. DUNN and PETER G. HUBBELL,
2 were called as witnesses and, having been first duly
3 sworn, were examined and testified as follows:

4 JUDGE KARLIN: Perhaps this question -- I
5 will admonish you that you are still under oath if you
6 will acknowledge that.

7 MR. HUBBLE: Yes, sir.

8 JUDGE KARLIN: Now, this is a question for
9 Mr. Hubble perhaps.

10 We were talking -- I was asking some
11 questions about the process that occurs when the
12 Environmental Monitoring Plan and the Aquifer
13 Performance Testing Plan discern potential adverse
14 environmental impacts and then evaluate and decide
15 whether or not mitigation or alternative water
16 supplies need to be implemented. Do you remember
17 that, sir?

18 MR. HUBBLE: Yes, sir.

19 JUDGE KARLIN: And I was concerned about
20 whether or not we were putting the public in a -- or
21 the process puts the public in a trust-us kind of a
22 situation. So my question really is could you
23 explain, is there any -- is the public informed of the
24 results of these testing plans that are generated; are
25 those public documents that are accessible?

1 MR. HUBBLE: Yes, sir. In two ways. The
2 Southwest Florida Water Management District has an
3 online, it's called WMIS, Water management Information
4 System, where not only are permits but reports, these
5 annual reports will posted, the data will be posted,
6 totally accessible by the public.

7 And, also, if the public is interested in
8 any of the facets of this particular condition,
9 whether it's the EMP or the APT, they just need to
10 write to the Water Management District and say we
11 would like the draft reports, we would like
12 notification of what is going on and the Water
13 Management District responds.

14 JUDGE KARLIN: Okay.

15 MR. HUBBLE: That generally happens with
16 water use permits for adjacent property owners and
17 those sorts of things. So it is very transparent.

18 JUDGE KARLIN: Okay. Does the public get
19 to submit comments to the Florida Department of
20 Environmental Protection or the Southwest Florida
21 Water Management District with regard to the adequacy
22 or inadequacy of the proposed plan that has been
23 submitted to the Agency as of this point?

24 MR. HUBBLE: Yes.

25 JUDGE KARLIN: Is that document made

1 available to the public on their web site or
2 something?

3 MR. HUBBLE: Well, again, the document has
4 not been submitted.

5 JUDGE KARLIN: Oh.

6 MR. HUBBLE: I'm sorry. The EMP?

7 JUDGE KARLIN: Yes, sir.

8 MR. HUBBLE: It's a draft. I'm sorry, the
9 drafts would be available if a member of the public
10 would like to see it. It's public information --

11 JUDGE KARLIN: Is it a FOIA process or
12 that they have to act --

13 MR. HUBBLE: I'm sorry.

14 JUDGE KARLIN: Is it a Freedom of
15 Information Act request or it's just automatically
16 there for seeing?

17 MR. HUBBLE: My experience, it is
18 automatic.

19 JUDGE KARLIN: Okay. Now, we are talking
20 about -- let's say data begins to be generated from
21 the Environmental Monitoring program that indicates
22 some potential adverse environmental impact and the
23 Agency, the Southwest Florida Water Management
24 District or the State of Florida begin evaluating and
25 discussing with the licensee whether or not some

1 mitigation measure needs to be implemented. What are
2 the opportunities, if any, for the public to
3 participate in that discussion and decision making
4 process?

5 MR. HUBBLE: I would -- I don't know
6 whether I can answer that on behalf of the Water
7 Management District or DEP. My experience has been
8 they will provide any interested party with drafts,
9 with a draft -- let's say it's adaptive management or
10 alternative water source proposals and in turn the
11 public always has the opportunity to comment in
12 writing.

13 JUDGE KARLIN: Well, let me just ask.
14 Does the Agency send it out for comment and say, we
15 are soliciting comments, speak now or forever hold
16 your peace?

17 MR. HUBBLE: I am not aware that the
18 actually occurs unless there's a request.

19 JUDGE KARLIN: Okay. Do they have public
20 hearings or meetings about these mitigation plans
21 before they make a decision on them?

22 MR. HUBBLE: My experience is no.

23 JUDGE KARLIN: Okay. That kind of covers
24 the questions I needed to ask. Thank you and you are
25 adjourned, you are dismissed.

1 Now, we will call up witnesses for the NRC
2 staff and those would be Mr. Doub and Mr. Prasad,
3 please or Dr. Prasad, I'm sorry.

4 Thank you. I know that both of you
5 gentlemen have previously sworn to your testimony
6 being the truth so I don't think we will need to ask
7 you to do that again, but I would remind you that you
8 are still under oath. Do you understand that?

9 DR. PRASAD: Yes.

10 MR. DOUB: Yes.

11 Whereupon,

12 RAJIV PRASAD, and PEYTON DOUB,
13 were called as witnesses and, having been previously
14 sworn, were examined and testified as follows:

15 JUDGE KARLIN: Could you identify
16 yourselves for the record, please.

17 DR. PRASAD: Rajiv Prasad for Pacific
18 Northwest National Laboratory.

19 JUDGE KARLIN: All right.

20 MR. DOUB: Peyton Doub, and NRC staff.

21 JUDGE KARLIN: Great, thank you.

22 Now, the FEIS, the Final Environmental
23 Impact Statement was issued by the NRC on April 27,
24 2012. Maybe I will ask, Mr. Doub, did the NRC -- did
25 you have the opportunity to look at any of these

1 environmental monitoring plan drafts before the FEIS
2 was issued?

3 MR. DOUB: We did not have the
4 opportunity. We were not provided access to the
5 drafts in time to incorporate that information in the
6 FEIS. The first time I saw them was at the April site
7 visit.

8 JUDGE KARLIN: Okay. April -- what was
9 the date?

10 MR. DOUB: April 2012.

11 JUDGE KARLIN: Okay. April 27th was the
12 FEIS issuance date. The site visit occurred before
13 that?

14 MR. DOUB: Yes, but there was not enough
15 time to --

16 JUDGE KARLIN: It wasn't enough time to
17 digest it and incorporate it in the FEIS; is that
18 correct?

19 MR. DOUB: Yes, Your Honor.

20 JUDGE KARLIN: All right. And, Dr.
21 Prasad, did you -- is that the same, do you testify in
22 the same way or do you have anything to add to that?

23 DR. PRASAD: No, Judge Karlin, that's
24 accurate.

25 JUDGE KARLIN: Okay. And could you please

1 speak up a little bit so the people in the audience
2 can hear us?

3 DR. PRASAD: Sure.

4 JUDGE KARLIN: Subsequently, have you had
5 the -- I'll address Mr. Doub -- the opportunity to
6 review the, any of the draft Environmental Monitoring
7 programs, plans that have been developed by the
8 Applicant here?

9 MR. DOUB: Yes.

10 JUDGE KARLIN: When did you do that?

11 MR. DOUB: Subsequent to receiving copies
12 in April 2012.

13 JUDGE KARLIN: Well, that makes sense, but
14 when? I mean in May of 2012 or September 2012?

15 MR. DOUB: April and May.

16 JUDGE KARLIN: Have you had any
17 opportunity to provide comments back to the Applicant
18 on those proposed plans?

19 MR. DOUB: No, I have not been asked to
20 write comments.

21 JUDGE KARLIN: Would it not -- is it not
22 -- it's not NRC's function to comment on those?

23 (No response.)

24 JUDGE KARLIN: I mean were you given them
25 as a courtesy or were they something you were actually

1 intending or supposed to respond to in any way?

2 MR. DOUB: They were provided to me for
3 information.

4 JUDGE KARLIN: So when the FEIS concludes
5 that it is in part relying upon the conditions of
6 certification and the environmental monitoring and
7 mitigation plans, at least with the EMP it was
8 something you really hadn't seen yet, as of the date
9 when the FEIS was issued --

10 MR. DOUB: Correct.

11 JUDGE KARLIN: -- or studied yet?

12 MR. DOUB: Yes, the FEIS was based on
13 their review of the COCs themselves and the
14 expectation there would be a plan, but not the actual
15 plan itself.

16 JUDGE KARLIN: What is your assessment of
17 the Environmental Monitoring Plan that has been
18 submitted?

19 MR. DOUB: It does not change the
20 conclusions that I made in the FEIS.

21 JUDGE KARLIN: Is it a good plan or a bad
22 plan or --

23 MR. DOUB: It fits expectations.

24 JUDGE KARLIN: It fits expectations?

25 MR. DOUB: Yes, sir.

1 JUDGE KARLIN: Are you -- the
2 environmental -- the Intervenors here have alleged
3 that there is a problem because the agency, the NRC
4 staff, has not reviewed the adequacy of those plans
5 before issuing the FEIS and yet the FEIS relies on the
6 implementation of those plans as being a way of
7 concluding that the environmental impacts will not be
8 large.

9 My question is, can post hoc review of
10 these Environmental Monitoring Plans by the NRC,
11 assuming there is a defect in the FEIS, can after the
12 fact review of those environmental plans by the agency
13 cure that defect?

14 (No response.)

15 JUDGE KARLIN: Now, that's a bit of a
16 legal question.

17 MR. DOUB: Yes, that's what I was
18 thinking. The COCs rather than being some vague
19 statement of commitment are highly prescriptive.
20 Therefore, we had enough information, the COCs
21 themselves to know what -- to develop general
22 expectations of what we would see in the plant.

23 JUDGE KARLIN: Okay. You are suggesting
24 that it doesn't need to be cured because the COC
25 itself was sufficient?

1 MR. DOUB: It provided us with enough
2 information to draw our conclusions with confidence.

3 JUDGE KARLIN: Okay.

4 MR. DOUB: Not 100 percent certainty but
5 with confidence.

6 JUDGE KARLIN: Right. I think I don't
7 have any further questions.

8 Any questions, Dr. Baratta?

9 (No response.)

10 JUDGE KARLIN: Mr. Charbeneau?

11 (No response.)

12 JUDGE KARLIN: Okay. Thank you, this
13 panel can step down. Thank you.

14 And, now, we will ask the Intervenor
15 witnesses to take the stand for this topic
16 Environmental Monitoring and Mitigation. We would ask
17 Mr. Still and Dr. Bacchus to take the stand, please.

18 Dr. Bacchus, I know you have already, you
19 know, sworn in so we don't need to repeat that. But,
20 Mr. Still, I think you are a new witness here, so
21 please raise your hand.

22 Whereupon,

23 DAVID STILL AND DR. SYDNEY BACCHAS,
24 were called as witnesses and, having been first duly
25 sworn, was examined and testified as follows:

1 JUDGE KARLIN: Yes, all right, thank you,
2 sir.

3 If you, Mr. Flyntz, could bring up the
4 Environmental Monitoring Plan, I believe that's
5 PEF305, and go to page 13, I believe it's 13, and --
6 well 14. Let's go to 14.

7 Back it up to 13. Okay.

8 Now, Dr. Bacchus, part of your testimony
9 I think in the rebuttal testimony is the EMP fails to
10 provide precise locations that would be monitored.
11 And it seems to me that the proposed EMP that we are
12 looking at here has locations for these transects,
13 these 12 transects; did I get that wrong or are you
14 thinking these are not the locations you are talking
15 about?

16 DR. BACCHUS: Well, it was my
17 understanding, Your Honor, that that was just a draft.

18 JUDGE KARLIN: Yes, ma'am.

19 DR. BACCHUS: And that it would be
20 determined at some later date and that, in fact, those
21 areas could change at a later date. And in addition,
22 of course, I have the concern that those locations did
23 not take into consideration the known location of the
24 fractures. So that basically they would be looking in
25 the wrong place for the impact and they --

1 JUDGE KARLIN: Right. Okay. So you are
2 saying these locations that are proposed in the EMP
3 are problematic because they are only proposed and you
4 don't know what final locations will be?

5 DR. BACCHUS: Yes, sir. It's just a draft
6 and --

7 JUDGE KARLIN: Right.

8 DR. BACCHUS: -- testified that, you know
9 it is going to be negotiated with the agencies. And
10 we already know that the public has no means of
11 providing any meaningful input during that process.
12 I mean, they are not a party to that process.

13 JUDGE KARLIN: Well, okay, let's just --
14 we will get to that, perhaps. And it does appear from
15 this map that some of the locations are -- they are
16 not confined to the LNP site or even to the North or
17 South property but go beyond that outside of the
18 property.

19 DR. BACCHUS: You are stating that's one
20 of my concerns?

21 JUDGE KARLIN: No, I'm saying that this
22 map shows sites, transects that are not on the LNP
23 site or the South property site.

24 DR. BACCHUS: I'm sorry. I can't really
25 see it from there and I don't have it right in front

1 of me. So if that's what it shows, I'll take your
2 word for it.

3 JUDGE KARLIN: Well, let's blow it up, Mr.
4 Flyntz, and let's see if we can discern that.

5 Let me get the pointer out. If we look to
6 the southern portions of that, we have M1, M2, this is
7 the corridor, this is the site.

8 DR. BACCHUS: Okay. So if I understand
9 Your Honor, you are saying -- when you are saying the
10 site you mean the north parcel?

11 JUDGE KARLIN: No. This is the south
12 parcel.

13 DR. BACCHUS: Right. Right. So you are
14 saying it is not complying to the north parcel. But
15 I consider the site the north and south parcels.

16 JUDGE KARLIN: Okay. Let's look at M9.
17 That's off of the site entirely; if I understand that
18 correctly, off of the north or south parcel. Do you
19 see that M9 in the northwest corner?

20 DR. BACCHUS: Yes, sir, I do see that.

21 JUDGE KARLIN: Go up a little higher, Mr.
22 Flyntz.

23 I think a little higher. Let's see if
24 we've got it.

25 DR. BACCHUS: Your Honor, could you tell

1 me what those black lines are on the sides that seem
2 to be bounding the site? My problem is that map
3 doesn't give me any way to determine what the adjacent
4 features are, where the roads are, anything that would
5 be able to orient myself.

6 JUDGE KARLIN: Okay. Let's go to the
7 other map. That's 14.

8 Okay. This is page 14 of the EMP. Again,
9 we are looking at monitoring points. I believe the
10 black lines are purported to show the North property
11 where it was sometimes referred to as the Site and the
12 South property with the well field and we have a
13 transect named B2, background 2, background 3 and go
14 up higher and there's a background 1. Those appear to
15 me -- well, background 2 and 3 appear to be off of
16 anything that is described as the Site. Would you
17 agree with that?

18 DR. BACCHUS: Yes, sir, I would, and my
19 concern would be that it is very possible that B2 and
20 B3 are sitting right on a fracture line that may, in
21 fact, be affected already.

22 JUDGE KARLIN: Right. They may be the
23 wrong location but they are off of the site?

24 DR. BACCHUS: That's correct, they are.

25 JUDGE KARLIN: Do you disagree with those

1 as reasonable monitoring locations?

2 DR. BACCHUS: Your Honor, I would have to
3 refer back to my map, have an overlay of that on my
4 map to see where they are in proximity to the
5 fractures before I could even answer that question.

6 JUDGE KARLIN: Okay.

7 DR. BACCHUS: So there is not enough
8 information on this map for me to tell what those
9 wetlands are going to do as far as providing
10 information for the monitoring.

11 JUDGE KARLIN: Where would you put the
12 monitoring locations?

13 DR. BACCHUS: Well, at the very least I
14 would have monitoring locations in the spring, I would
15 have monitoring -- when I say the spring I mean in
16 King Spring and Little Springs. I would have
17 monitoring locations at the swallet. I would have
18 every depressional wetland on that entire site,
19 meaning both the north parcel and the south parcel,
20 instrumented.

21 JUDGE KARLIN: Wait a second. Let me stop
22 you there. The FEIS contains a map that shows the
23 wetlands. In fact, maybe Board Exhibit -- well, I'm
24 not going to go through that.

25 But the FEIS shows all the wetlands that

1 have been delineated by the U.S. Corps of Engineers on
2 the site. And there are quite a few of them. And
3 there's several thousand acres if you count the North
4 and South property combined. And there would be
5 dozens and dozens and dozens of wetlands that are in
6 there. And you think every one of those needs to be
7 instrumented --

8 DR. BACCHUS: Your Honor, for them to --

9 JUDGE KARLIN: -- in order to monitor
10 potential adverse impacts?

11 DR. BACCHUS: Yes, sir, Your Honor,
12 because those wetlands are not going to respond at the
13 same time. They are not going to respond at the same
14 distance from the pumping wells and there is no way
15 that they can do meaningful monitoring if they don't
16 even have instrumented baseline data from before they
17 made this application. Yes, sir. That's my
18 testimony.

19 JUDGE BARATTA: Are you aware of any
20 project where that's done? I mean that seems to be a
21 very large task.

22 DR. BACCHUS: Well, Your Honor, I'm glad
23 you asked that question because every single project
24 that I am familiar with where they have had
25 depressionals wetlands like these involved on the

1 project site, every single instance those wetlands
2 have been destroyed. And they have had all kind --

3 JUDGE BARATTA: That's not what I asked.
4 I said are you aware of any project where they
5 monitored every single wetland on the site?

6 DR. BACCHUS: There was one small site on
7 the SWFWMD site where they did monitor.

8 JUDGE BARATTA: And how big of a site was
9 that?

10 DR. BACCHUS: I don't remember, Your
11 Honor, but I think it is one of my exhibits in there.
12 It was the one where I had the photograph where they
13 had the instrumented wetlands and they --
14 unfortunately they didn't instrument the wetlands
15 until after they had initiated pumping, and after the
16 impacts had occurred.

17 JUDGE BARATTA: Could you give an
18 approximate size? Was it 10 acres, 100 acres, 1,000
19 acres, 10,000?

20 DR. BACCHUS: It was not 1,000 acres. And
21 it was -- probably what they did is did a subset
22 around their pumping wells. And so I would say it was
23 probably maybe less than 100 acres, somewhere in the
24 100-acre range.

25 JUDGE BARATTA: There's a big difference,

1 don't you agree between 100 acres and 7,000?

2 DR. BACCHUS: Yes, sir. I do. And I
3 think that's the whole point is this site is covered
4 with wetlands and, you know, my testimony from the
5 very beginning is that the site is not suitable for
6 what they are proposing.

7 JUDGE KARLIN: Well, may I ask: when one
8 does sampling isn't it the norm to take a
9 representative sample rather than sample 100 percent
10 of the potential data points and take it from there?

11 DR. BACCHUS: Yes, sir.

12 JUDGE KARLIN: So rather than 100 percent
13 maybe you start with 20 percent and if you see some
14 problems you can increase the sampling points?

15 DR. BACCHUS: Yes, sir. I think that's
16 possible and if they went out and actually
17 instrumented every wetland that fell along the
18 fracture lines both on site and off site I think that
19 would be a representative sample. But that hasn't
20 been proposed.

21 JUDGE KARLIN: Well, we haven't
22 established there are any fracture lines, have we?

23 DR. BACCHUS: Well, No, sir.

24 JUDGE KARLIN: You have testified that you
25 see lineaments

1 DR. BACCHUS: No, sir. We have established
2 there are fractures. I mean there are publications;
3 the Florida Geological Survey is the one who published
4 Vernon's study and those are, in fact, fractures. So
5 the only dispute is are some of those fractures faults
6 or are they not faults. The dispute is not whether
7 they are fractures.

8 JUDGE KARLIN: All right. All right. All
9 right. Okay. Let me ask this. The Environmental
10 Monitoring Plan is a document you have seen or have
11 had the opportunity to see. Will, NIRS or the ecology
12 Party of Florida have an opportunity to comment on,
13 submit comments to the Southwest Florida Water
14 Management District --

15 DR. BACCHUS: No.

16 JUDGE KARLIN: -- let me finish my
17 question -- or the State of Florida? Can't you just
18 send some comments in now?

19 DR. BACCHUS: Your Honor, it wouldn't
20 matter if we sent comments. You know, I think what's
21 already been established is there is no mechanism to
22 have any input. And I basically have --

23 JUDGE KARLIN: No, I don't think that's
24 been established. What I think I heard him testify to
25 is: They don't go and affirmatively solicit comments,

1 but the question is. If this is public information is
2 it not true that the public, members of the public
3 could submit comments to the relevant agencies about
4 the adequacy or inadequacy of that proposed monitoring
5 plan?

6 DR. BACCHUS: They could submit comments
7 but they have no weight. I mean, Your Honor, this is
8 basically what I have been doing is representing
9 groups at state level --

10 JUDGE KARLIN: Okay. Well, you answered
11 the question. Do -- you say they can submit comments.

12 DR. BACCHUS: They have no standing for
13 any input.

14 JUDGE KARLIN: Okay.

15 DR. BACCHUS: Unless they are an adjacent
16 property owner. That's the only opportunity for them
17 to have standing.

18 JUDGE KARLIN: Are you saying that the
19 Southwest Florida Water Management District and the
20 Florida Department of Environmental Protection would
21 ignore any comments unless they are from an adjacent
22 owner?

23 DR. BACCHUS: Yes, sir. That is what I am
24 saying, and they do.

25 JUDGE KARLIN: Okay. One of the concerns

1 you have raised on your testimony, rebuttal testimony
2 is that five years of monitoring the environmental
3 impacts, the Environmental Monitoring Program is not
4 long enough to identify potential adverse impacts. I
5 mean if the impacts are expected to be as large as you
6 seem to think they are, wouldn't five years be ample
7 to pick them up and see them?

8 DR. BACCHUS: Not in the way they are
9 monitoring, Your Honor. Not in the monitoring
10 techniques they are using, they will not see those
11 impacts in five years.

12 JUDGE KARLIN: Okay. So it is a function
13 of the inadequacy of the monitoring plan?

14 DR. BACCHUS: Yes, Your Honor.

15 JUDGE KARLIN: But inadequate monitoring
16 plan would or probably would pick up these impacts

17 DR. BACCHUS: Might be able to, Your
18 Honor, but then there's the other concern that those
19 impacts would be attributed to climatic factors and
20 written off as impacts from climatic factors that had
21 no relationship to what they were doing on the Site.

22 JUDGE KARLIN: Right. Right. Maybe I
23 could ask you a little bit about the desalination
24 option as an alternative water supply.

25 In your experience in the Southwest

1 Florida Water Management District or the Florida
2 Department of Environmental Protection do they take --
3 how do they take costs into account in assessing
4 whether or not to implement or require an alternate
5 water supply system?

6 DR. BACCHUS: Well, Your Honor, I have
7 never seen an instance where alternative water
8 supplies have been used an alternative mitigation for
9 wetlands impact. So I wouldn't be able to answer that
10 at all. I apologize. I have never seen it at all.

11 JUDGE KARLIN: All right.

12 DR. BACCHUS: I mean I guess I am also a
13 little confused as to how they are going to use desal
14 water to recreate spring flow that has been destroyed
15 by construction or recreate hydroperiod in wetlands
16 that have been drained and dewatered by construction
17 even if they weren't withdrawing a single drop of
18 water from the wells I don't see, you know, how they
19 could use desal to compensate or mitigate for those
20 hydroperiod impacts.

21 JUDGE KARLIN: Okay. Are you familiar
22 with the U.S. Army Corps of Engineers process for
23 issuing 404 permits are you -- let me just ask that.
24 Are you familiar with that?

25 DR. BACCHUS: Yes, sir. I actually used

1 to do instructional courses for their process.

2 JUDGE KARLIN: And are you commenting or
3 participating with the Florida Ecology Party or any
4 other entity in the U.S. Army Corps of Engineers'
5 consideration of the 404 permit here?

6 DR. BACCHUS: I am not commenting on
7 behalf of the Ecology Party, but I have submitted
8 comments for the 404 process as an individual.

9 JUDGE KARLIN: Are you familiar with the
10 concept of LEDPA, least environmentally damaging
11 practical alternative?

12 DR. BACCHUS: I am familiar with that,
13 yes.

14 JUDGE KARLIN: Could you explain that
15 briefly to us?

16 DR. BACCHUS: Well, my understanding of it
17 and, you know, I have never implemented it from the
18 Agency but that is where they look at the least
19 damaging option and consider that -- assuming it is
20 technically feasible, that's my understanding. If it
21 is available and technically feasible, they can
22 consider it to --

23 JUDGE KARLIN: So, is it correct to say
24 that before the Army Corps of Engineers issues a
25 section 404 permit they need to conclude that the

1 plan in front of them is LEDPA, is the least
2 environmentally damaging practical alternative?

3 DR. BACCHUS: Well, I can't say.

4 JUDGE KARLIN: Okay. All right. I am
5 taking you off on a tangent that is not your --

6 DR. BACCHUS: I have never actually acted
7 behalf of the Agency.

8 JUDGE KARLIN: I think I don't have any
9 further questions.

10 Dr. Charbeneau?

11 JUDGE CHARBENEAU: (Non-verbal response.)

12 JUDGE KARLIN: Dr. Baratta?

13 JUDGE BARATTA: (Non-verbal response.)

14 JUDGE KARLIN: All right. Thank you.

15 Mr. Still, I'm sorry we didn't get to ask
16 you any questions. But thank you for coming.

17 Actually I would like to say this. I know
18 that we have -- you can sit down. We have a number of
19 witnesses here who really weren't asked very many
20 questions and several witnesses who we didn't actually
21 even call up. We thought about that before we came
22 down here and we thought about whether it would be
23 fair or appropriate to recuse them or tell them --
24 excuse them from coming because we know it is a cost
25 for the parties to bring them here. We had recused or

1 discharged five of the 20 witnesses because we thought
2 pretty well that we understood and we didn't have
3 questions for them. With regard to the others, I can
4 only say we weren't sure. We thought we needed to
5 have you here, but --and in the end I think we have
6 decided we did not need to ask questions of several of
7 you and I appreciate your patience in coming here on
8 standby in any event.

9 We have completed I believe the
10 Environmental Monitoring and Mitigation Alternative
11 Water Sources discussion with the exception of you all
12 submitting suggested written additional questions that
13 we might ask.

14 And so we will do our little thing and take a break.

15 Here is what we probably ought to do, we
16 don't need -- we are not going to reconvene just to
17 receive your written questions. So why don't we say
18 this. Please submit your written questions in about
19 10 minute. We are going to adjourn. You submit the
20 written questions. Matt Flyntz will collect them.
21 And then we will look at them back in chambers and
22 talk about them and come back out and either ask some
23 of them or all of them or none of them. And at that
24 point after we have done those questions we will
25 probably turn to the closing statements by the

1 lawyers.

2 Well, we might have -- I think we are
3 going to forego, Dr. Baratta, Dr. Charbeneau, do we
4 want to have an opportunity to have a brief oral
5 argument, oral questioning of the lawyers before we go
6 to closing?

7 (No response.)

8 JUDGE KARLIN: Well, let's just wait. We
9 will wait and see on that. We just might do that as
10 well. We might ask a few legal questions of the
11 lawyers. And in any event we will stand adjourned
12 now. Please submit your questions within 10 minutes.

13 Yes, Mr. O'Neill?

14 MR. O'NEILL: Judge Karlin, given the
15 schedule you have just laid out, would it be fair to
16 allow any witness who is not subject to being called
17 back from this last panel to leave if they want to
18 catch a plane or something at this time?

19 JUDGE BARATTA: I have one question for
20 one of the witnesses from yesterday.

21 JUDGE KARLIN: Okay.

22 JUDGE BARATTA: So could we --

23 JUDGE KARLIN: Do we know who that is?

24 JUDGE BARATTA: Yeah.

25 JUDGE KARLIN: Do we want to tell them or

1 keep it secret?

2 JUDGE BARATTA: We can actually have Mr.
3 Rizzo come up now.

4 JUDGE KARLIN: All right. Can we have --
5 do a little impromptu? One last question.

6 JUDGE BARATTA: He's been sitting there so
7 patiently, I thought I better ask him the question.

8 JUDGE KARLIN: Let's let him go home;
9 let's get him out of here.

10 Okay. Dr. Rizzo, I will remind you you
11 are still under oath and thank you for staying.

12 And, Dr. Baratta, please proceed.

13 Whereupon,

14 PAUL C. RIZZO,
15 was called as a witness and, having been previously
16 sworn, was examined and testified as follows:

17 JUDGE BARATTA: Yesterday we heard from
18 the Intervenor's witness, I think it was Dr. Hazlett
19 if I recall correctly, that what he thought should be
20 done was not to rely on the modeling but on
21 monitoring. Would you agree or disagree with that
22 monitoring is something that can be relied on to
23 prevent environmental impacts of significance?

24 MR. RIZZO: Well, monitoring programs are
25 generally always included with nuclear power plant

1 development. In fact, we have monitoring programs
2 designed to be implemented with the excavation,
3 dewatering, the construction of the Nuclear Power
4 Plant Islands and turbine buildings, and we do that
5 not only from a safety point of view, but we are very
6 much concerned with water levels around our plant
7 during construction, for example, and we are
8 interested in water quality from the watering wells
9 around our site during constructions.

10 JUDGE BARATTA: So you feel it's something
11 that can be relied on, that's what you are saying?

12 MR. RIZZO: Well, we use monitoring as
13 part of our -- one of tools in our tool bag.

14 JUDGE CHARBENEAU: Do those monitoring
15 programs continue after construction?

16 MR. RIZZO: Some of them do. For example,
17 settlement, monuments, and piezometer levels continue
18 well after construction.

19 JUDGE CHARBENEAU: And water level
20 measurements?

21 MR. RIZZO: Yes, sir.

22 JUDGE KARLIN: Okay. Thank you, Dr.
23 Rizzo.

24 With that I will respond to Mr. O'Neill's
25 question, which is, yes, we will dismiss all the

1 witnesses except those who were called to speak on the
2 environmental mitigation and modeling issues in the
3 event that we might, the parties are going to suggest
4 questions for us and we might have to ask some
5 additional questions of them. But everyone else thank
6 you for coming here, for the effort getting out of the
7 hurricane, et cetera, and sitting here for two full
8 days listening to the scintillating questions that we
9 are asking.

10 Yes.

11 MR. O'NEILL: In light of that, Judge
12 Karlin, I would like to introduce Dr. George Halrod.

13 JUDGE KARLIN: Oh, yes.

14 MR. O'NEILL: If he would stand up with
15 his sling. He has been sitting here for two days.
16 And, of course, I am sure you have relied on his
17 testimony with respect to he is also a meteorologist
18 and also with respect to the cooling towers
19 dispersement.

20 JUDGE KARLIN: Yes, Dr. Halrod, thank you
21 for coming. I am sorry to see you are injured.

22 And, also, Ms. Aston, and Dr. Masnik, and
23 Dr. Miracle and Ms. Sutton from the NRC have been
24 here, I'm sure, and they -- we didn't get a chance to
25 call them. I have their names down here just in case.

1 But I think we decided we didn't need to ask you any
2 questions.

3 But I believe we did ask questions or at
4 least call up all of the witnesses from the Intervenor
5 and I think the -- in general I think the
6 presentations were quite good and the pre-filed
7 testimony was very helpful especially when you
8 provided definitions of terms that help the legal
9 judge on this Board.

10 So with that let us take an adjournment.
11 Within 10 minutes please submit your written
12 questions, if any, we will look at them and reconvene
13 in about 15 minutes.

14 We are adjourned.

15 (Whereupon, the above-entitled matter went
16 off the record at 3:08 p.m. and resumed at 3:26 p.m.)

17 JUDGE KARLIN: Please be seated.

18 The Board is now back in session and we
19 are on the record.

20 The parties, well actually we solicited
21 potential questions for this topic and the Intervenor
22 have suggested a number of them. So we will ask the
23 PEF witnesses to take the stand if you would and I
24 believe we need -- who do we need -- Dr. Hubble and I
25 mean Mr. Hubble and Dr. Dunn. I don't think Mr.

1 Griffin is needed for this one. So could you please
2 come up, sir, gentlemen?

3 And I would like to remind you, you are
4 still under oath so please take that in mind.

5 Whereupon,

6 DR. WILLIAM J. DUNN and PETER G. HUBBELL,
7 were called as witnesses and, having been previously
8 sworn, were examined and testified as follows:

9 JUDGE KARLIN: Dr. Baratta perhaps will
10 ask the questions.

11 JUDGE BARATTA: Yes, I should have asked
12 this before but I apologize. So I was prompted to ask
13 it by one of the parties.

14 Does the EMP currently include any
15 monitoring of the Big and Little King Springs? Do you
16 know?

17 DR. DUNN: No, it does not.

18 JUDGE BARATTA: Why is that? Do you have
19 an explanation?

20 DR. DUNN: I was not party to assembling
21 the EMP. But the EMP is responsive to the COCs. So
22 the issues on the COCs which are based on Water
23 Management District's review tend to focus on
24 wetlands.

25 JUDGE BARATTA: It just seems as though

1 those are two significant hydrological features in the
2 area and I guess from an engineering perspective I
3 would have expected them to be monitored. Doesn't
4 that type of logic; does that come into play as well
5 or not?

6 DR. DUNN: I don't disagree with your
7 logic, Dr. Baratta, but, you know, it currently is not
8 included -- the Spring monitoring is not included in
9 the EMP. But, again, remember that the EMP in its
10 current incarnation, even though it's the second it's
11 still a draft. And if that issue is put before the
12 discussion in the further negotiations with the Water
13 Management District, FDEP and the Corps then I'm sure
14 that could be added.

15 JUDGE BARATTA: Mr. Hubble, could this --
16 I'm sorry, have I got the right -- you have the
17 experience with Water Management District, right?

18 MR. HUBBLE: Correct.

19 JUDGE BARATTA: In other cases that you
20 came across when you were working there was that
21 monitoring of significant hydrological features in the
22 area, was that commonly required as part of EMPs?

23 MR. HUBBLE: Yes. Significant hydrologic
24 resources were commonly required. To me it is always
25 a question of how far from a property would you

1 require monitoring. And, again, as Dr. Dunn said,
2 this is a draft document being discussed, negotiated
3 with the agencies and we may receive a comment like
4 that.

5 JUDGE BARATTA: It just seems that it is,
6 what, I think 3,000 feet from where the Nuclear Island
7 is I think, or 1,500 feet from the edge of the
8 property. And looking at that I think we heard
9 testimony to that effect and that would put it some,
10 fairly close I guess wouldn't it to the --

11 MR. HUBBLE: It would. As I look at the
12 EMP though it seems to be focused more on the actual
13 well field and, again, the well field is to the south,
14 the springs are up to the northwest. And, again, the
15 hydrologic monitoring that is required as part of the
16 EMP I think will reflect both localized and
17 potentially regional impacts, if there are impacts to
18 the surficial aquifer system.

19 JUDGE KARLIN: Okay. Thank you, gentlemen,
20 you may step down.

21 Okay. We have now completed the
22 evidentiary presentations and questions of the
23 witnesses during this evidentiary hearing. We had
24 talked in our pre-hearing order about the possibility
25 of having an oral argument by the lawyers to discuss

1 and to talk with us about several legal issues. I
2 think in lieu of having any formal oral argument, Dr.
3 Baratta has got a question or two that he would like
4 to address to several of the counsel and that will
5 perhaps, suffice.

6 So, Dr. Baratta, you are on.

7 JUDGE BARATTA: I feel strange in a role
8 asking legal questions.

9 JUDGE KARLIN: He doesn't listen to my
10 answers. So he asks you.

11 JUDGE BARATTA: Why do you think I'm
12 asking them?

13 If I look at -- I don't know whether you
14 are familiar with it, but in the Carolina Power and
15 Light Shearon Harris decision by the Appeal Board
16 1978, the Appeal Board stated, we do not read the
17 statute, referring to NEPA, as foreclosing the
18 placement of heavy reliance upon judgment of local
19 regulatory bodies which are charged with the duty of
20 ensuring that the utilities within their jurisdiction
21 full fill the legal obligation.

22 Now, the question here -- I'm going to
23 pose this to PEF to begin with and kind of go down the
24 line -- is why doesn't that constitute a hard look in
25 terms of NEPA at the issue we have before us in that

1 it is clear from the Staff discussion that their
2 reliance -- that they relied heavily on the Southwest
3 Florida Water Management District's COC and yet we
4 have heard that - and the Staff failed to take or it
5 is alleged that they failed to take a hard look as
6 required under NEPA. Would you care to comment on
7 that?

8 MR. O'NEILL: Judge Baratta, I am going to
9 allow Mike Lepre to respond to these questions.

10 JUDGE BARATTA: Okay.

11 MR. LEPRE: Dr. Baratta, in fact, our
12 argument is exactly that. That the Shearon Harris
13 decision does provide support for the argument that
14 what the Staff did in this case satisfied NEPA it did
15 take a hard look by examining the COCs. The COCs were
16 developed through a very comprehensive state process.
17 It involved over a year of proceedings. There was a
18 public process where there was a hearing before an
19 Administrative Law Judge that involved 28 federal
20 agencies were involved in the process. There was 8
21 days of hearing. There was back and forth between
22 SWFWMD and PEF prior to the hearing.

23 In fact, we heard testimony about how that
24 process resulted in shifting the wells from the
25 northern -- north of the Nuclear Island to the

1 southern site. So that was an extremely thorough
2 process and as a result the Staff appropriately and
3 was entitled to place substantial weight on that
4 process.

5 And that is similar to what the situation
6 was in the Shearon Harris case where the State had
7 done a need for power analysis or had done a demand
8 forecast that showed that there was a need for the
9 power and the Staff in that case was found to have
10 properly relied on the expertise of the local agency.

11 Now, the Staff certainly has to take that
12 and do an independent look, which we believe they
13 certainly did based on the testimony we heard today,
14 based on the fact they required a recalibrated model
15 showed their independence look. So we do believe that
16 what the Staff did under the Shearon Harris case was
17 take a hard look as set forth in that decision.

18 JUDGE BARATTA: Now, in doing so and
19 relying on the COC it appears that the FEIS relies
20 very heavily on the possibility of mitigation to avoid
21 a large impact in my reading of the FEIS.

22 Is there case law out there that you are
23 aware of that talks to relying on mitigation when the
24 impact might be large otherwise?

25 MR. LEPRE: There is, but I would just

1 like to clarify one point. I think that the COCs
2 relied on monitoring and the potential for mitigation
3 --

4 JUDGE BARATTA: Yes, I'm sorry. Yes, you
5 are correct.

6 MR. LEPRE: it didn't necessary say there
7 would have to be mitigation.

8 But, yes, if you look at the Robertson
9 decision, the U.S. Supreme Court decision that we cite
10 in our brief, in that case the Forest Service came in
11 an FEIS for a proposed ski area. The Forest Service
12 came to the conclusion in its FEIS that without
13 certain mitigation measures there would substantial
14 impacts on air quality relating to some development
15 that as going to accompany the proposed ski area. So
16 the proposed development -- the FEIS would -- could
17 result in significant impacts to air quality.

18 JUDGE BARATTA: I remember that case.
19 Let's take it one step further.

20 MR. LEPRE: Sure.

21 JUDGE BARATTA: I am going to concentrate
22 on the mitigation as opposed to the monitoring.

23 MR. LEPRE: Sure.

24 JUDGE BARATTA: Because if the monitoring
25 doesn't show anything then we're having an academic

1 discussion so-to-speak.

2 Is there case law out there that talks to
3 how detailed the discussion of mitigation measures in
4 an FEIS would have to be?

5 MR. LEPRE: Well, actually it's in the
6 Robertson case. The Robertson case says that you have
7 to provide, you do have to provide some detail
8 regarding the proposed mitigation measures. And if
9 you read through the Robertson case there actually is
10 a list of things in the Robertson decision pulled out
11 from the FEIS that proposed types of mitigation
12 actions that would mitigate the impact from the
13 activity. And the Robertson decision found that that
14 description, which was a high level description, they
15 even talked about it being an outline, a conceptual,
16 and a vague description was good enough to satisfy
17 NEPA. That NEPA did not require that a complete
18 mitigation plan be developed. And they specifically
19 overturned the 9th Circuit decision below, which the
20 9th Circuit said the mitigation plan needs to be fully
21 developed.

22 So it is you have to provide some detail,
23 but you do not need a fully developed mitigation plan.

24 JUDGE BARATTA: What about does the case
25 law require a firm commitment or a legally binding

1 commitment to do mitigation that's outlined in the
2 FEIS?

3 MR. LEPRE: To actually implement
4 mitigation?

5 JUDGE BARATTA: Yes.

6 MR. LEPRE: Again, I would cite you to the
7 same decision. The Robertson decision actually
8 addressed that issue as well. The 9th Circuit below
9 had argued that there was no reasonable assurance that
10 the mitigation plan would be developed much less
11 implemented or successful. The 9th Circuit found that
12 -- reached that decision based on an MOU that had been
13 entered into between the Forest Service and two other
14 entities.

15 The 9th Circuit said well that MOU does
16 not provide us with reasonable assurance that the
17 mitigation will be implemented. Therefore, the FEIS
18 was inadequate.

19 But the Supreme Court specifically
20 overruled that as well and said, because NEPA does not
21 impose substantive obligations on an agency there is
22 no obligation -- no authority for the agency to ensure
23 that the mitigation plan was actually implemented. So
24 that was addressed in that decision as well.

25 JUDGE BARATTA: And lastly, are you aware

1 of any case law where an agency relied on mitigation
2 in order to have a finding of no significant impact
3 where, in fact, there would be without the mitigation?

4 MR. LEPRE: I'm not aware of that.

5 JUDGE BARATTA: Unfortunately, I can't
6 find my cite.

7 MS. CURRAN: My turn.

8 JUDGE BARATTA: All right. Well, the same
9 questions. Let's start out with the top level one,
10 which is: In light of that decision do you still hold
11 to your statement that appears in your statement of
12 position that the FEIS fails dismally short of a hard
13 look required by the National Environmental Policy
14 Act?

15 MS. CURRAN: Absolutely.

16 JUDGE BARATTA: And why is that?

17 MS. CURRAN: I think one thing to bear in
18 mind is that the Carolina Power & Light case did not
19 overturn Calvert Cliffs or any of the other cases that
20 say if a state agency is issuing a related permit the
21 principal agency does not -- is not excused from its
22 obligation to take a hard look. So the fact that there
23 is a process going on in the State of Florida for a
24 water use permit here does not excuse the NRC from
25 taking a hard look. And that includes a hard look at

1 proposed mitigation. And I think what we have seen
2 here is that the issue of impacts is very closely
3 related to the issue of mitigation.

4 If the agency doesn't have a firm grasp on
5 the impacts -- you have to understand the impacts
6 before you can mitigate them. If you don't as we have
7 been saying for the past two days, if you don't know
8 where to look, if you don't know when to look; how are
9 you going to know where and when to monitor? There is
10 nothing that excuses the NRC from that fundamental
11 hard look requirement.

12 JUDGE BARATTA: Is there case law though
13 that says that the hard look requirement is met by
14 determining if the process that the state agency
15 performs is reliable?

16 MS. CURRAN: Well, and we have here that
17 we have SWFWMD using a model that the NRC had found to
18 be unreliable or not suitable for this process. So we
19 know that in this process that there was -- again
20 getting to the critical question of how to figure out
21 when and where to monitor impacts, we know or we have
22 strong evidence that the state permitting agency
23 wasn't even using the correct model.

24 JUDGE BARATTA: In the state, in SWFWMD's
25 documents are you aware of any statements that say

1 that modeling is, in fact, not that reliable, that
2 there are large uncertainties, therefore, they require
3 monitoring?

4 MS. CURRAN: You know, I can't think of
5 any right now, but I certainly think it is important
6 to bear in mind that in this case, in the
7 environmental study the NRC Staff found that the model
8 was not -- modeling was not an adequate way to rule
9 out significant impacts here. And yet, it is being
10 used as a fundamental element of the SWFWMD permitting
11 process. And not even the -- not even the best model.

12 JUDGE BARATTA: Are you aware of any case
13 law where an agency has been able to not issue an EIS
14 but have a finding of no significant impact based upon
15 the existence of a mitigation plan?

16 MS. CURRAN: Yes, I think those are called
17 mitigation FONZIES. And -- I am trying to think of an
18 example of a case. But I do believe that the standard
19 for reviewing a mitigation FONZIE case is did the
20 agency take a hard look. Did it take a hard look at
21 the impacts? Is the mitigation plan based on a hard
22 look at the impacts? And with don't think that
23 standard is satisfied here.

24 JUDGE BARATTA: All right, Staff.

25 MR. MARTIN: We are going to split our

1 answers. Mr. Roach is going to answer the first part
2 and I will answer the second part. We split up the
3 questions.

4 JUDGE BARATTA: The first part concerns
5 the hard look being satisfied by --

6 MR. MARTIN: The Shearon Harris case.

7 MR. ROACH: The staff's hard look at
8 wetland impacts consisted of not the conditions of
9 certification, of course, but also the analysis of
10 modeling and also the quantitative analysis of wetland
11 drawdowns. The Staff relied on the legal effect of
12 the conditions of certification, but independently
13 reviewed the substantive requirements of those
14 conditions of certification and concluded those three
15 things composed a reasonable basis to support its
16 impact conclusion.

17 JUDGE BARATTA: All right.

18 MS. CURRAN: Judge Baratta, I realize I
19 didn't completely answer one of your questions about
20 the state process whether -- if the process was
21 adequate. One of the things that we say here was that
22 there is a mechanism for Progress Energy to be excused
23 from environmental monitoring after only five years.
24 And so we do not have assurance that that monitoring
25 -- we have serious problems with the monitoring plan

1 in the contents of the plan, but even if we didn't, we
2 really don't have a reasonable assurance that that
3 monitoring plan is going to remain in effect long
4 enough to ensure that mitigation, you know, will be
5 effective.

6 Plus, we also heard testimony here today
7 that PEF has ruled out all the mitigation alternatives
8 that would involve alternative water supply.

9 MR. LEPRE: Judge Baratta, can I interject
10 a point here, please?

11 JUDGE BARATTA: Let's let the Staff. I
12 don't want to get into a round robin discussion.

13 MR. LEPRE: I would like to make a point
14 at the end, if possible. Thank you.

15 JUDGE BARATTA: I will give you two
16 minutes, how is that?

17 MR. LEPRE: Thank you.

18 MR. ROACH: Ms. Curran is -- I suppose is
19 referring to 5-year potential limit of the
20 Environmental Monitoring Program. The Staff noted
21 that five years was a minimum and I believe that that
22 was sufficient basis to conclude that the protective
23 elements of the conditions of certification would
24 prevent large impacts from occurring, because they
25 would detect or predict those impacts.

1 But the Staff also doesn't necessarily
2 believe that it is reasonably foreseeable that
3 monitoring would be discontinued after five years.

4 JUDGE BARATTA: Do you want to answer the
5 second question?

6 MR. MARTIN: Sure. I guess I agree with
7 Mr. Lepre that Robertson -v- Methow Valley is good
8 case law as far as what is required for a mitigation
9 plan. I think if you look at the details that were in
10 the mitigation plan relied upon by the Forest Service
11 in Robertson -v- Methow Valley we have significantly
12 more details in this case than they had in that case.
13 We actually had specifics in the conditions of
14 certification and we have -- Basically, the conditions
15 of certification in this case provided much more
16 specifics than the Forest Service had in that case.

17 As far as your question about mitigations
18 or findings and those significant impacts, I would
19 just like to note there is case law about what Ms.
20 Curran referred to as mitigated FONZIs. But I would
21 like to note we are not doing a mitigated FONZI in
22 this case.

23 JUDGE BARATTA: No, no, that -- I was not
24 meaning to imply that.

25 MR. MARTIN: Okay. Yeah, we are not doing

1 an environmental assessment. We are doing an
2 environmental impact statement. So while that case
3 law is there and also the -- in question four you
4 asked about the CEQ Guide and that talks about
5 mitigated FONZIs as well. But in this case we are not
6 doing a mitigated FONZI and not only is that case law
7 not appropriate, but also, the mitigation here is
8 required. It is required by the state law, by the
9 state conditions of certification. So we do have
10 confidence that it is actually going to occur. It is
11 not just merely a promise about any sort of support.

12 JUDGE BARATTA: Your two minutes.

13 MR. LEPRE: Thank you.

14 Ms. Curran raised an issue that also goes
15 into actually a question that you had asked one of our
16 witnesses that was really more of a legal question.
17 And so, I just wanted to address that.

18 She mentioned that after five years the
19 EMP potentially could go away and then there would be
20 no monitoring or reporting. You had asked one of our
21 witnesses a question about the 5-year compliance
22 reports that appears in a separate -- the 5-year
23 compliance report requirement -- it appears in a
24 separate section of the COCs and it's section C2A5 of
25 the COCs.

1 There was testimony regarding an --

2 JUDGE KARLIN: What page is that?

3 MR. LEPRE: That is page 46.

4 JUDGE KARLIN: Okay.

5 MR. LEPRE: There was uncertainty on the
6 part of our witness as to whether that 5-year
7 reporting requirement would continue even if the EMP
8 goes away. And the answer to that question is that
9 the COCs aren't interpreted just to mean that the
10 compliance reporting will continue even if the EMP
11 goes away. That compliance reporting requires that
12 the licensee demonstrate continued compliance with the
13 administrative statute under which the permit was
14 issued and the water use permit basis of review
15 section 4.2, which has the performance standards that
16 were the subject of some questions that the Board
17 asked us.

18 So I just wanted to clarify that that
19 reporting requirement does continue and it includes
20 other information in addition to just information that
21 would have been gathered under the environmental
22 monitoring. And so there is continued compliance
23 reporting even if the EMP were to go away.

24 MS. CURRAN: Could I just ask for the
25 legal citation for that?

1 MR. LEPRE: It's in C2A5 of the COCs,
2 section C2A5.

3 JUDGE KARLIN: Dr. Baratta, are we okay?

4 JUDGE BARATTA: I don't want to get into
5 a round robin here, so I think I will cut out while
6 it's, you know.

7 JUDGE KARLIN: Okay. Dr. Charbeneau, any
8 questions?

9 I would like the record to reflect that we
10 just had a mini oral argument and Judge Alex Karlin
11 for the first time in history didn't ask any
12 questions. Mr. Lepre sucked me in with one question:
13 what page is that? That doesn't count.

14 MR. LEPRE: I quit while I was ahead.

15 JUDGE KARLIN: And you will have to be
16 mystified as to why I didn't ask any questions. But
17 anyway, no questions.

18 Now, we turn to closing arguments I
19 believe. We are at that moment and I think the -- I'm
20 not sure what our initial order said, but I think the
21 proper order here would be for the Intervenors to go
22 first, the Applicant to go second and the Staff to
23 conclude, because the Staff has the ultimate burden
24 here on whether what they did, the Staff did is
25 reasonable.

1 So could we have Ms. Curran?

2 MS. CURRAN: Mr. Webster is going to give
3 our closing argument.

4 JUDGE KARLIN: Great, okay, Mr. Webster,
5 please.

6 MR. WEBSTER: I'd like to say I'm not just
7 a pretty face, Judge, I can actually talk.

8 JUDGE KARLIN: Yes, we were wondering
9 about that. We love your accent, however, you know,
10 you can get 10 bonus points of IQ for your British
11 accent.

12 CLOSING STATEMENT ON BEHALF OF THE INTERVENOR

13 MR. WEBSTER: May it please the Board,
14 Richard Webster for the Intervenors.

15 We thank you for your efforts over the
16 last couple of days reviewing the testimony in this
17 case. We believe the Board's questions have been both
18 searching and very informative.

19 You need to remember that this is the
20 first -- this is the first Green field site nuclear
21 plant proposed in many, many years, indeed in decades.
22 We have seen the size itself, those of us that had a
23 chance to visit it is extremely sensitive. It has
24 many sensitive environmental properties upon the site,
25 mainly wetlands. It has many sensitive environmental

1 features close to the site, springs, swallets, and so
2 forth.

3 There are also endangered species. There
4 are all sorts of very sensitive habitats on and close
5 to this site. And what we have seen is that the NRC
6 has failed to require any accurate modeling of where
7 and when the impacts will occur.

8 The site characterization has left open
9 the question whether conduits could exist or not. We
10 believe that they do. We believe that you can see
11 them. The outlet of Big King Spring is the end of a
12 conduit. There are clear springs in the Barge Canal.

13 So although the Agency has recognized the
14 possibility of those conduits it has allowed their
15 presence or absence to go undecided. Nonetheless, it
16 has decided that the construction and operation of the
17 nuclear plant could cause significant impact on
18 wetlands. It has concluded that the Southwest Florida
19 Water Management District's, the model that the
20 Southwest Florida Water Management District accepted,
21 is not an adequate model to predict those impacts. It
22 has concluded that even an effort to improve that
23 model by adding in a little bit more data, still
24 doesn't predict the impacts and it is perhaps not
25 surprising because what we have seen is that all along

1 the Applicant was concentrating on the north site.
2 They too -- they characterized the north site at least
3 with regards to safety with some degree of care.

4 But with regards to the south site, there
5 is a huge gap in the data set. And either the
6 Applicant or the Agency, I mean in this case the
7 Agency ultimately bears the burden, in order to
8 characterize those impacts properly, in order to
9 characterize that site properly, they should have had
10 more data on the southern portion of the site. Indeed
11 they needed more data on the northern portion too, but
12 the blank is most obvious with regard to the southern
13 portion.

14 Now, the Agency also failed to require the
15 Applicant to even model the construction impacts.
16 They are putting two very large impermeable blocks
17 deep into this aquifer a few thousand feet from a
18 surficial spring. And the Agency didn't even require
19 any modeling at all of the impact of doing so.

20 The Agency instead decided to rely on the
21 COC, the problem is, the COC as we have seen is of
22 limited scope. It doesn't even address construction
23 impacts.

24 Indeed, the baseline monitoring for the
25 COC could start after construction has started. So the

1 baseline monitoring itself could be affected by the
2 construction.

3 So we believe the Staff failed to take a
4 hard look at the impacts that this could cause.

5 Now, having failed to find out when and
6 where the impacts will occur, the Staff says well,
7 it's okay because there is going to be some
8 monitoring. The problem is as we have heard, first of
9 all, the COC -- has got its limiting scope. Second of
10 all, the COC relies on a model that the Staff already
11 knows is wrong. And under predicts drawdowns
12 dramatically, it disagrees with the measured
13 transmissivities and other measured properties on the
14 site to the extent there aren't any measured
15 properties on the site to the extent there aren't any
16 measured properties on the site, it disagrees with
17 them.

18 So it's unreasonable to rely on something
19 that is based on something that you know is incorrect.

20 Now, what we have seen in terms of gaps in
21 the COC, these gaps in COC are very evident. We have
22 just heard the Big King Spring, one of the very
23 sensitive environmental features, which feeds wetlands
24 below it, I should add. And so they haven't done --
25 not only have they done no baseline monitoring, not

1 geochemistry, no calcium magnesium ratio, they don't
2 even propose to do any monitoring afterwards.

3 With regard to APT we are told magically
4 it will find where the conduits are. But as we have
5 heard from Mr. Davies you have to work hard to find
6 conduits. It is not easy. It can be expensive. But
7 we heard nothing from the Applicant about how they are
8 going to do it, it is kind of amazing they couldn't do
9 it now, but they are going to be able to do it later
10 but would just don't know how. That's unreasonable.
11 You can't rely on somebody promising you something
12 that you were being -- if somebody tells me I can't
13 give you something today, but in two years' time I
14 will give it to you; I generally don't rely on that
15 promise, especially when it is a very valuable and
16 sensitive resource.

17 If the ecology party in Florida told me,
18 you know what, we will pay you \$1 million in two
19 years' time, I wouldn't rely on that promise.

20 Now, so here we know it is foreseeable
21 that the impacts on springs and wetlands could be
22 unacceptable. The Agency hasn't ruled that out
23 because of their deficiencies in their process and the
24 deficiencies in the Southwest Florida Water Management
25 District process that the Agency knows about.

1 So, therefore, -- oh, one other thing.
2 Just one other COC weakness. The COC ultimately
3 relies on the feasibility of an alternative water
4 supply. The problem is that the EIS ruled out a
5 number of alternatives that our witnesses have some
6 disagreements about, but ultimately the Agency made
7 the decision and we believe it is an incorrect
8 decision that certain AWS alternatives can't be done.

9 Here today, PEF's witnesses have ruled out
10 ultimately the desal plant. So now, again, there is
11 this promise in the COC that alternative water supply
12 will be produced. Again, we just don't know what it
13 is. It is a magic solution, the magic bullet that
14 will appear magically when unacceptable -- when and,
15 if, ultimate unacceptable impacts are found.

16 Again, beware of the magic bullet.
17 Especially one that doesn't even exist right now and
18 nobody has been able to tell you what is composed of,
19 what it is made of, and how it is going to be
20 delivered. It's more like this magic bullet is going
21 kill the local wetlands and wildlife that is going to
22 save PEF.

23 So ultimately if there are unacceptable
24 impacts, the Agency must do something that it hates to
25 do. It must actually find a nuclear plant that it

1 doesn't like. This plant is in the wrong place. It
2 is being built at the wrong time, a huge -- it could
3 be built at the wrong time at huge expense to Florida
4 rate payers. It could provide a rate bomb in that if
5 they had a hugely expensive alternative water supply
6 to put in after the plant is built. And ultimately
7 the NRC needs to save Progress Energy from themselves.
8 And if the impacts aren't acceptable it needs to deny
9 the license.

10 Thank you.

11 JUDGE KARLIN: Thank you, Mr. Webster.

12 Mr. O'Neill? He took 10 minutes so you
13 get two.

14 MR. O'NEILL: I am not impeded by an
15 accent, so I speak much more rapidly.

16 JUDGE KARLIN: No, no. You get one
17 minute.

18 CLOSING ON BEHALF OF THE APPLICANT

19 MR. O'NEILL: Progress Energy also
20 appreciates the Board's attention to this matter and
21 the questioning, although I can say that I really miss
22 cross-examination.

23 JUDGE KARLIN: You didn't move for it,
24 though.

25 MR. O'NEILL: I was tempted.

1 As Mr. Hubble said, this is a very small
2 withdrawal. The amount of water that will be used,
3 withdrawn from the aquifer, for the operation of this
4 plant, is equivalent to a peanut farm or three golf
5 courses.

6 There is abundant water supply in this
7 area and very little demand. Far more attention,
8 however, has been given to this specific water
9 withdrawal because, as Mr. Webster says, this is the
10 first green field site for a nuclear power plant in
11 decades. And, therefore, the State, 28 agencies, the
12 Nuclear Regulatory Commission and the Army Corps of
13 Engineers have focused this site and this water
14 withdrawal.

15 Far more information is available
16 regarding this site because of the site
17 characterization for the Nuclear Island foundation,
18 not because of water withdrawal but because this is a
19 nuclear plant and they have had to characterize it.
20 The core borings were certainly required for other
21 purpose but provide information that will never be
22 made available in connection with a withdrawal of
23 water.

24 The Intervenors' suggestions of more
25 drillings, tracer tests, are really just research

1 projects. As Mr. Chairman said today NEPA requires a
2 rule of reason. The rule of reason here and NEPA case
3 law allows the parties to rely on what is the standard
4 in the industry here, what is the standard in SWFWMD,
5 which we have plenty of testimony in the record was
6 indeed a state-of-the-art in how you maintain water
7 resources.

8 So we have a -- instead of trying to do
9 projections based on experience or any other reason
10 there has been a very sophisticated model that was
11 developed by Mr. Rumbaugh who testified to it in great
12 detail using what is the industry standard mod flow to
13 do this type of analysis. He is now on his third
14 revision to it, which is really doing no more than
15 adding a lot of additional data as it has been
16 developed from aquifer performance tests and from well
17 drillings and it makes it more and more accurate.

18 A point that I want to make with respect
19 to that is that it is a conservative model. Why?
20 Because conservatism was built in as Mr. Rumbaugh
21 attested to and the way it was constructed. And,
22 secondly, if you just looked at the results of the
23 model for this M1, it does include the maximum amount
24 1.58 million gallons per day, which is 25 percent more
25 than is actually projected to be used. That

1 conservatism is already built in.

2 With respect to M1 it was validated
3 because the calculation in the model that was reduced
4 to the 400 square miles was validated by the actual
5 pump test that was done on the northern property. The
6 model results in the southern property are consistent
7 with the trends in transmissivity as it goes down
8 toward the other side of the barge canal where we also
9 have actual data that showed the transmissivities
10 which were greater.

11 The transmissivity values in the southern
12 property were not consistent with karstic preferential
13 flow, not consistent with it. They would have to be
14 five times or more the values that are projected in
15 the southern property and, indeed, considerably more
16 than are on the other side of the barge canal as you
17 approach Crystal River where they have real data.

18 So, we know that centerpiece of the case
19 here, this is going to be preferential flow and we
20 haven't drilled 1,000 drills to find those conduits.
21 It's just not real. It is worse than speculation. It
22 is a dream. It's not there.

23 The model that we believe is conservative,
24 has been used by SWFWMD, predicts negligible impacts
25 on the wetlands. The model that was used by the NRC

1 Staff which at the end they said they used because it
2 was more conservative. That's true. And they also
3 said it's sort of served as a sensitivity analysis.
4 And then they took the results of that model and they
5 did their environmental analysis.

6 But it was a little overly sensitive
7 because it used the data point that Dr. Charbeneau
8 asked a lot of questions about and we asked a lot of
9 questions about and our witnesses testified to. It
10 doesn't make any sense. And as SWFWMD has eliminated
11 it from any of their models because it isn't real.
12 The USGS includes it in a chart to be sure, but that
13 doesn't make it valid data if you take the people who
14 know the area and they look at it.

15 The Staff, however, is correct in
16 predicting the range of impacts due to the uncertainty
17 modeling and reliance on the environmental monitoring
18 program and mitigation required by the COC and they
19 have come up with a range of impacts that are in the
20 range of small to moderate. And those we believe are
21 valid although we think they are really going to be
22 small.

23 The NRC did its job. But let's talk about
24 the COC. The Aquifer Performance Test will validate
25 the model and will be performed under the COC five

1 years before operation, five years before operation in
2 excess of 100,000 gallons per day for production
3 purposes.

4 Adaptive management, indeed a
5 state-of-the-art, for water resource management. The
6 EMP will be performed pursuant to a plan approved by
7 the U.S. Army Corps of Engineers and SWFWMD and as Dr.
8 Bacchus indicated, she has already participated in
9 that process.

10 We note, incorrectly stated by Ms. Curran,
11 that PEF has not ruled out alternative water supply.
12 We couldn't rule it out we still have to go through
13 two other processes. We noted that it is likely to be
14 very expensive. We haven't ruled it out. And indeed
15 they have a letter, which is not an exhibit here so
16 she shouldn't have made that point, because we have
17 committed to the Army Corps of Engineers if the
18 alternative water supply is needed, we will commit to,
19 it's not binding, desal.

20 NEPA does not require the NRC to address
21 the details of an Environmental Monitoring Plan or
22 alternative water supplies in the FEIS. They produced
23 it before it was even available. The NRC as was
24 pointed out, really does not have any reason, and
25 certainly authority to condition a license to address

1 environmental mitigation it's not required by NEPA.

2 The NRC Staff has met its burden and there
3 is no evidence that Progress Energy will not perform
4 monitoring and that SWFWMD will not enforce it as
5 suggested by the Intervenors.

6 Let's sum up. For four years now the
7 Intervenors have alleged many, many, things and part
8 of this contention, but they have provided no credible
9 evidence to support any of their allegations. There
10 has been a continuous series of unsupported
11 speculation and principally demands for more testing,
12 more data which was the theme of Ms. Curran's closing:
13 instrumenting every wetland, countless drilling of
14 holes, tracers and dye tests. This is not a research
15 project. This is looking at the reasonably
16 foreseeable environmental impacts based on an awful
17 lot of information in this part of Florida before
18 SWFWMD.

19 I submit to the Board -- oh, two other
20 things I want to correct. The modeling of the
21 foundation is PEF015 and it is 75 feet excavation, not
22 100 feet and it show that there was no impact on the
23 flow of the aquifer and that was available to the NRC.
24 And by the way it is not 1,000 feet from the edge of
25 the property. It is 3,000 feet. And that is also in

1 the record.

2 Now, I will close. There is reasonable
3 assurance as discussed in considerable detail in these
4 three volumes that there will be small, if any,
5 impacts on wetlands from active dewatering, or passive
6 dewatering, which has been discussed a long time, or
7 from salt drift. We discussed in enough detail in the
8 testimony, and certainly not from wild fires caused by
9 water withdrawal.

10 We submit this Atomic Safety and Licensing
11 Board should reject this contention and we should move
12 on.

13 Thank you very much.

14 JUDGE KARLIN: Thank you, Mr. O'Neill.

15 Mr. Martin.

16 MR. MARTIN: Yes.

17 JUDGE KARLIN: You get to close.

18 CLOSING ON BEHALF OF NRC

19 MR. MARTIN: Thank you, Your Honor, and I
20 would also like to thank you for having this hearing
21 down here and, again, thank the Levy County and
22 Courthouse, for having us for two days.

23 The evidence that we have heard over the
24 past two days and that has been submitted in all the
25 testimony shows clearly that the NRC took a hard look

1 at all the environmental impacts in this case and that
2 the EIS meets the rule of reason.

3 I think we need to remember that this case
4 revolves around Contention 4(a). We are talking about
5 impacts, de-watering and salt draft. There has been
6 a lot of other issues as have been mentioned but at
7 issue here is Contention 4(a) and when we look at all
8 the evidence as has been presented for dewatering and
9 for salt drift we meet the rule of reason and we have
10 taken the hard look.

11 For site characterization it is true that
12 there is more site characterization done in the north
13 parcel than the south parcel of land. However, that
14 was largely done for the safety side. And there was
15 enough characterization done on the south side for us
16 to take a hard look at the environmental impacts. We
17 had regional information from the United States
18 Geological Survey.

19 We had information from two different
20 modeling runs that were done and the information that
21 we had from the north parcel confirmed our regional
22 characteristic information that we saw. So there was
23 no reason for the Staff to expect that there would be
24 major changes from the north parcel to the south
25 parcel of land. And even if there are any -- even if

1 there is something we missed, it wouldn't have changed
2 the approach that the NRC Staff used and even if we
3 actually did boreholes down on the south parcel it
4 would not have changed the approach that the NRC staff
5 used.

6 The NRC Staff used the modeling as a
7 scoping level technique. We also looked at the
8 regional data, as I mentioned, and we are going to
9 rely in part on the conditions of certification
10 including the aquifer performance test. The Aquifer
11 Performance Test Plan is not a magic board. The
12 Aquifer Performance Test will be used to show whether
13 the responsiveness of the aquifer is similar to what
14 was done in the two models and as the Applicant's
15 witnesses testified, if there are problems in the
16 model the model will be updated. So altogether the
17 Staff's approach is still sound. It has sufficient
18 information to take a reasonable hard look at the
19 environmental impacts due to dewatering.

20 The second two panels the Staff talked a
21 little bit more in detail on the second panel. The
22 Staff talked in more detail about its modeling
23 approach. In this case the Staff reviewed the
24 Applicant's first model. It asked for a second model
25 to better match the Site conditions. And it did this

1 because it saw that there were some discrepancies and
2 it wanted to see the sensitivity of the model to any
3 changes. It also wanted to get a better understanding
4 of the site and how the model would react in different
5 site conditions.

6 As I just mentioned the Staff used the two
7 models as part of its review but it still used the
8 model as a scoping level tool for impacts to wetlands.

9 Regarding conditions of certification:
10 The conditions of certification were very specific in
11 this case. They are not mere promises. We did not --
12 review, just did a state review. We reviewed in
13 detail the State conditions of certification.

14 After reviewing them in detail we looked
15 at the reasonable foreseeable impacts that would occur
16 with the State conditions of certification in place.
17 These weren't empty promises these were requirements,
18 these are our state law and these provided more detail
19 than conditions that you see in cases like Robinson v
20 Methow Valley that we just discussed.

21 So taking all this information, looking at
22 the model, the regional information, looking at the
23 details in the conditions of certification the Staff
24 was able to take a reasonable hard look at the issues
25 in this case, at the dewatering impacts, and impacts

1 from salt drifts and salt deposition. In all, the
2 Staff's testimony shows that it took the required hard
3 look and followed the Staff guidance, it did a
4 thorough review and the EIS complies with NEPA.

5 Thank you.

6 JUDGE KARLIN: Thank you. All right.

7 We have had the closing arguments and this
8 is very helpful and we are now at the end essentially
9 of this evidentiary hearing. We probably need to go
10 from the sublime to the mundane here and talk a little
11 bit about where we go from here and logistics.

12 The first thing I want to talk briefly
13 about is that we will have a transcript and we have
14 not yet set in our initial scheduling order or any
15 other order a time frame for proposed corrections to
16 the transcript, so we need to do that. Our thought is
17 that we would ask the parties to submit proposed
18 corrections to the transcript within 14 days, two
19 weeks.

20 Yes, Ms. Curran?

21 MS. CURRAN: Judge Karlin, we have a
22 problem that we are not going to be able to afford to
23 buy the transcript and we are going to need to wait
24 until it becomes available on ADAMS and I don't know
25 how long that will take.

1 JUDGE KARLIN: You mean after paying your
2 legal bills, they can't afford to buy the transcript.
3 Okay.

4 MS. CURRAN: I try to keep them to a very
5 reasonable limit.

6 JUDGE KARLIN: Well, you know, I recognize
7 that is an issue. We have a couple of issues. One,
8 the regs do require or talk about the party and our
9 parties submitting their initial findings of fact and
10 conclusions of law 30 days after today. And so we may
11 need to adjust that date as well if we are going to do
12 something.

13 Now, Mr. O'Neill moved in January and we
14 granted that not only will there be initial findings
15 of fact and conclusions of law but then there will be
16 15 days later, rebuttal findings of fact and
17 conclusions of law and so that's a process we are
18 going to honor and proceed with. We might have to
19 adjust the dates.

20 Why don't we do it this way and have the
21 proposed corrections to -- motions to proposed
22 corrections to realize the transcript due --

23 JUDGE BARATTA: How about two weeks after
24 the -- because the transcript will be put up on --

25 JUDGE KARLIN: I don't know what that date

1 is going to be. I would like to say the Wednesday
2 before Thanksgiving. That's another week. That is
3 virtually 21 days. Three weeks. And so I think
4 that's the 20th of November. They took away my cell
5 phone so I can't look at my calendar. But, November
6 20th submit proposed corrections to the transcript.

7 MS. CURRAN: Judge Karlin.

8 JUDGE KARLIN: Yes.

9 MS. CURRAN: I would just like to make a
10 request. I have an oral argument in the DC Circuit on
11 November 19th and I would -- that is the week
12 Thanksgiving week, Monday, and I am just -- I am
13 concerned about not having enough -- it's going to be
14 a lot of transcript pages to read and I want to do a
15 good job. I am just concerned that I won't have
16 enough time to do a good job on that.

17 JUDGE KARLIN: So what are you proposing
18 as a date?

19 MS. CURRAN: I would propose the end of
20 the last week of November would be very helpful to me
21 so that I would have the week after Thanksgiving to do
22 it.

23 JUDGE KARLIN: Anyone have any objections
24 to that?

25 Okay. Yeah, Mr. O'Neill?

1 MR. O'NEILL: As long as we keep the
2 schedule for proposed findings because we are going to
3 bump into Christmas if we don't.

4 JUDGE KARLIN: Well, that's right.

5 MR. O'NEILL: Which we don't want to do.
6 It seems to me that we don't want to, you know, take
7 everybody's schedule and worry about one party's
8 concern of the thing. We have a schedule that has
9 been set for a long time that took into account, you
10 know, very reasonableness of folks not wanting to work
11 on the holidays.

12 JUDGE KARLIN: Okay. I understand. That
13 does -- that's a valid concern. The proposed findings
14 of fact and conclusions of law are due 30 days from
15 today. You are asking for an extension, which would
16 be, let's say, four weeks from today, 28 days from
17 today. So, obviously, that's going to be a problem
18 and probably need to push back the proposed findings
19 of fact. And it pushes everybody back into Christmas
20 on that task or the December holidays.

21 So I need a calendar, I'm sorry. I think
22 we need to have a look at a calendar here. I am going
23 to break the rules and turn my cell phone on. It has
24 a little calendar on it. It may take a long time to
25 come up.

1 MR. O'NEILL: Judge Karlin, I have a
2 suggestion because this could -- we will give Ms.
3 Curran a copy of the transcript within -- as soon as
4 we get it and we will keep 14 days.

5 JUDGE KARLIN: All right. How is --

6 MR. O'NEILL: We will have the exact same
7 amount of time.

8 JUDGE KARLIN: How does that sound?

9 MS. CURRAN: I still have a problem that
10 that's, you know, the 14-day period when I must
11 prepare for an oral argument. That's my problem.

12 JUDGE KARLIN: All right. Well, -- let's
13 not have an oral argument about that. But I mean I
14 think that cures your problem, which is there is a
15 cost issue and you have to wait for the EHD to put it
16 up. And, so, I think what we will do is have Mr.
17 O'Neill commit to have PEF give you a copy of the
18 transcript as soon as they get it and we'll put the
19 20th of November, which is the Wednesday before
20 Thanksgiving as the deadline for proposed corrections
21 to the transcript.

22 Now, I want to talk about proposed
23 correction to the transcript. I really would hope
24 that we don't have a lot. If there are typographical
25 or spelling or name problems or acronym problems

1 that's great. If there are more substantive changes
2 to the transcript that you are proposing as
3 corrections, -- let me change that.

4 When you submit your proposed corrections
5 to the transcript, because we have had cases where they
6 get into a big fight about whether there is a
7 correction or not. And I have had to go back and have
8 my law clerk or me go back and listen to the tapes and
9 see well how do we sort this out, which one is right?
10 So in your proposed corrections you need to have
11 certification by the lawyer. You will certify that
12 you have listened to the transcript and believe in
13 good faith that the proposed corrections more
14 accurately reflect the actual testimony that was
15 given. This is not a time to rehabilitate or change
16 the testimony. If your witness testified to something
17 wrong, well so be it. That's what they testified to.
18 So corrections are only -- you have to listen, I want
19 you to listen to the transcript, listen to the tape
20 and say, yeah, this is more accurately reflects it,
21 because otherwise you are just speculating.

22 MS. CURRAN: Judge Karlin, I just need to
23 clarify. I have never received a tape.

24 JUDGE KARLIN: Well, you can access one.

25 MS. CURRAN: All right.

1 JUDGE KARLIN: You have to access one. I
2 am not going to have you speculate what was said. You
3 have to listen to the tape. If you think there is
4 something wrong, you need to get the tape and listen
5 to it because I don't want to have to listen to it to
6 sort out a fight between you all about which was the
7 right thing. So if there are substantive changes to
8 the transcript, I am not talking about typos, or
9 whatever, you need to listen to the tape and say I
10 listened to it and I think he said yes instead of no.

11 And so the proposed changes will be due on
12 November 20th and then the proposed findings of fact
13 and conclusions of law would be submitted, now, we
14 have it at a 30 days from today's date and we can make
15 it -- why don't we change that a little bit to give
16 you some more time. So why don't we make it two weeks
17 after the 20th of November.

18 MR. WEBSTER: Judge Karlin.

19 JUDGE KARLIN: Yes.

20 MR. WEBSTER: With due respect, I request
21 a little bit longer than that. If we could go -- if
22 we could make it December 20th it would still avoid
23 Mr. O'Neill's concern, which I share which we'd rather
24 not work over the holiday, but it would give us just
25 a little bit longer because it will be a long

1 transcript, there is a lot of technical testimony here
2 and it will take us a little bit of time to digest it.

3 JUDGE KARLIN: December 20th, another
4 month?

5 MR. MARTIN: Would have the reply findings
6 to then go into holidays.

7 MR. WEBSTER: That's 30 days from --

8 MS. CURRAN: That's what you don't want
9 any extension of time. That's what he's -- he's
10 offering an extension of time.

11 MR. WEBSTER: Oh is that what -- sorry,
12 Judge.

13 JUDGE KARLIN: We are talking about
14 proposed changes to the corrections to the transcript
15 November 20th.

16 MR. WEBSTER: Right.

17 JUDGE KARLIN: Then you submit your
18 proposed findings of fact and conclusions of law and
19 we will make that three weeks after the 20th, what is
20 that date? Do you have that?

21 MS. CURRAN: Judge Karlin I would like to
22 request a deadline of December 20th for the proposed
23 findings.

24 JUDGE KARLIN: What's three weeks from
25 November 20th? It will be December 18th. So proposed

1 findings of fact/conclusions of law December 19th.

2 Mr. O'Neill?

3 MR. O'NEILL: Judge Karlin, let's step
4 back. We originally scheduled a 45-day period, which
5 includes the reply findings which gets you to about
6 December 18th if I'm not mistaken. That's okay, but
7 what I hear Intervenors want to do is to push back the
8 proposed findings of fact and Conclusions of law to
9 the 18th, which would mean 15 days later around New
10 Year's we will be filing rebuttal. The whole purpose
11 of this was to have this over with before the
12 holidays. That's a reasonable schedule. It's a
13 reasonable time to do it.

14 JUDGE KARLIN: Are you suggesting we
15 retain the 30-day time frame for the proposed findings
16 of fact and conclusions of law?

17 MR. O'NEILL: I am.

18 JUDGE KARLIN: One thing I want to see in
19 the proposed findings of fact and conclusions of law
20 is accurate citations to the transcript. And if the
21 transcript changes because certain pagination changes,
22 I mean I'm going to be writing a decision and you are
23 going to be submitting proposed findings of fact and
24 those proposed findings of fact would need to cite to
25 the transcript lots of times. And I want those pages

1 that you are citing to me to be accurate so that when
2 we write ours we can go find it.

3 MR. O'NEILL: Pages aren't going to
4 change.

5 JUDGE KARLIN: They could a little bit.

6 MR. O'NEILL: Not if you are just -- we
7 are not -- I have never changed a page number in a
8 transcript. You simply say on line such and such
9 instead of the word Swift Mud, S-w-i-f-t M-u-d, it's
10 SWFWMD. That's what we are really talking about. So
11 it is getting the things that -- and I know that this
12 court reporter wouldn't get that wrong because she has
13 been doing these 20 years in front of SWFWMD but I
14 make that point that that is the type of thing you see
15 in corrections. It will not change the pagination.
16 The only thing you will have to do is once you get the
17 other party's proposed corrections, you take a look to
18 see if --

19 JUDGE KARLIN: Okay. I understand how the
20 mechanics work. We will do it this way -- I mean we
21 really want to get this material. It has been set 30
22 days for the proposed findings of fact and conclusions
23 of law. Fifteen days later for the rebuttal findings
24 of fact and conclusions of law. We can eliminate the
25 rebuttal entirely or we can leave it in. I am

1 expecting not to see much in the rebuttal anyway, but
2 the -- so the schedule we are setting will be motions
3 to correct the transcript due November 21, I will say.
4 That is the Wednesday before Thanksgiving. I'm sorry
5 if I said 20th before, 21st, the Wednesday before
6 Thanksgiving. Two weeks later on December 5th if I
7 have got this right, the proposed findings of fact and
8 conclusions of law initial should be filed. And 15
9 days later on December 20th the rebuttal findings of
10 fact and conclusions of law should be filed because we
11 have to write a decision and we have to write a
12 decision within -- we are supposed to write a decision
13 within 90 days of the closing of the record. And the
14 closing of the record will occur after we have
15 finalized the transcript.

16 Right now the record is essentially closed
17 but for transcript corrections.

18 MR. WEBSTER: Judge Karlin, may I point
19 out that in this case, the Agency can't issue a
20 license for at least 18 months to two years due to
21 other factors. And so it is mystifying for us, why is
22 there such a rush?

23 JUDGE KARLIN: There is no rush. The rush
24 is this Board has an obligation to rule promptly. The
25 regulations require us to rule promptly after the

1 close of an evidentiary hearing and it is my intent to
2 do so. I can't control what the Commission is doing,
3 what the Applicant is doing, or what anybody else is
4 doing, but I can try to make this railroad run on
5 time.

6 MR. WEBSTER: Well, if I may point out, I
7 was at the Indian Point hearing last week.

8 JUDGE KARLIN: This is not Indian Point.

9 MR. WEBSTER: I realize that too.

10 JUDGE KARLIN: We have been very clear
11 this is not Indian point and I'm not Larry McDade.

12 MR. WEBSTER: I realize that too.

13 JUDGE KARLIN: So that's the schedule.

14 Let me talk about the proposed findings of
15 fact and conclusions of law briefly. What we would
16 like to see is first off, thorough citations to the
17 record, to the transcript, to the evidence. If you
18 make a factual assertion or suggest we make a factual
19 finding, we would like to have some citations to the
20 record to support those evidentiary conclusions.

21 And let me also add that when you cite to
22 testimony, we want to see the name of the person who
23 is testifying. What I do not want to see is the Staff
24 testified to X. The Staff doesn't testify to
25 anything, Mr. Vermeul testifies to something or Dr.

1 So-and-so testifies to something. Those well over 11
2 witnesses are not fungible. Some of them have
3 different expertise; different talents and I want to
4 know who is testifying because that's how we write
5 decisions.

6 MS. CURRAN: Just a clarification. You
7 are not expecting that with respect to the Staff's
8 written testimony, are you?

9 JUDGE KARLIN: The Staff's written
10 testimony, yes. I want to know who is --

11 MS. CURRAN: It was written by a group of
12 people. They were not individual.

13 JUDGE KARLIN: I want to know which ones
14 are testifying. If you want to list all four of them,
15 I want to have it. I don't want the initials either.
16 I don't want VRV/DOB; I want Mr. Doub and Dr. Jones
17 and et cetera, et cetera. Because I don't want --
18 because that was a very difficult -- I don't like the
19 way the Staff submitted their testimony; big group
20 grope. We want to have specific individuals. Okay?

21 I also would note that the Intervenor --
22 at the outset we talked about this briefly -- is going
23 to submit corrections to its exhibit list as we
24 discussed, just to clarify the record. If you would
25 do that in the next 10 days?

1 MS. CURRAN: Yes, I will.

2 JUDGE KARLIN: Thank you. I think those
3 are the mundane details that we needed to cover.

4 MR. MARTIN: Your Honor, can I bring up
5 one more mundane issue?

6 JUDGE KARLIN: Yes, Mr. Martin.

7 MR. MARTIN: Technically I owe you a
8 status report today, because it is the first Thursday
9 of the month. However, given the hurricane I was
10 unable to have a conversation with my project managers
11 this week. So I propose I file it for you next
12 Thursday.

13 JUDGE KARLIN: All right.

14 JUDGE BARATTA: We don't have the ability
15 for a contempt citation, I guess.

16 JUDGE KARLIN: All right. That's fine.
17 That's fine, next week. Next Thursday is that when
18 you are going to do it?

19 MR. MARTIN: Yes.

20 JUDGE KARLIN: Okay. And then just to
21 conclude. Where do we go from here it becomes a
22 little bit obvious. We will get the transcript. We
23 will get the corrections to the transcript. We will
24 look at the proposed findings of fact and conclusions
25 of law that are submitted by the parties. We will

1 think about it. We will deliberate. And we will
2 develop and issue a decision. That decision is
3 generally due 90 days after the close of the record.
4 The record won't close until the transcript
5 corrections are finalized. But that's when we will
6 issue a decision. So it will be next year sometime,
7 February time frame, March.

8 The issue as I think most everyone has
9 agreed is not whether this proposed project would have
10 environmental impacts. I think there is a full
11 agreement that it would have environmental impacts.
12 That's not the issue for the NRC. That's not the
13 issue for this Board. The issue is whether or not the
14 environmental impact statement prepared by the NRC
15 Staff fairly and adequately discussed and analyzed the
16 reasonably foreseeable environmental impacts and
17 whether the NRC Staff took a hard look at those
18 impacts in trying to make a decision. And so that's
19 what we have to decide whether or not the Staff took
20 a hard look and fairly assessed it in that
21 environmental impact statement that is sitting on the
22 table in front of Mr. O'Neill.

23 Therefore, I think we will close. In
24 closing I would like to thank the parties, the lawyers
25 I think we have had excellent lawyering on this case

1 and a lot of strong technical testimony from all
2 sides. And we are going to think hard about this and
3 do our best.

4 Before we close I would like to thank Mr.
5 Shipp who is the Clerk of the Court here and the Chief
6 Judge Robert Roundtree of the 8th Judicial Circuit who
7 has allowed us to use this facility.

8 With that this hearing is closed.

9 (Whereupon, the above-entitled matter went
10 off the record at 4:35 p.m.)

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CERTIFICATE

This is to certify that the attached proceedings
before the United States Nuclear Regulatory
Commission

Proceeding: Progress Energy Florida, Inc.

Docket Number: 52-029-COL and 52-030-COL

ASLBP Number: 09-879-04-COL-BD01

Location: Bronson, FL

were held as herein appears, and that this is the
original transcript thereof for the file of the
United States Nuclear Regulatory Commission taken
and thereafter reduced to typewriting under my
direction and that said transcript is a true and
accurate record of the proceedings.

Neal R. Gross

Official Reporter
Neal R. Gross & Co., Inc.

NEAL R. GROSS

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