

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

DUKE ENERGY FLORIDA, LLC

(Levy Nuclear Plant, Units 1 and 2)

Docket No. 52-029-COL

Docket No. 52-030-COL

ORDER
(Setting Deadline for Proposed Transcript Corrections)

The Commission held an evidentiary hearing on July 28, 2016, at its Rockville, Maryland headquarters to receive testimony and exhibits in the uncontested portion of the captioned proceeding. The hearing transcript is appended to this Order. Pursuant to my authority under 10 C.F.R. § 2.346(a) and (j), the parties may file any proposed transcript corrections no later than August 9, 2016. The parties may coordinate their responses and file a joint set of corrections.

IT IS SO ORDERED.

For the Commission

NRC Seal

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 2nd day of August, 2016.

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: Hearing on Combined Licenses for Levy
Nuclear Plant Units 1 and 2: Section 189(a)
of the Atomic Energy Act

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Thursday, July 28, 2016

Work Order No.: NRC-2516

Pages 1-161

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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HEARING ON COMBINED LICENSES FOR LEVY NUCLEAR PLANT

UNITS 1 AND 2: SECTION 189(a) OF THE

ATOMIC ENERGY ACT

+ + + + +

THURSDAY,

JULY 28, 2016

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Commission met in the Commissioners' Hearing Room at the Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, at 9:03 a.m., Stephen G. Burns, Chairman, presiding.

COMMISSION MEMBERS:

STEPHEN G. BURNS, Chairman

KRISTINE L. SVINICKI, Commissioner

JEFF BARAN, Commissioner

ALSO PRESENT:

ANNETTE VIETTI-COOK, Secretary of the Commission

PATRICK A. MOULDING, Assistant General Counsel,

Office of General Counsel

1 NRC AND LICENSEE ATTORNEYS:

2 DAVID R. LEWIS, Counsel for Duke Energy Florida

3 KEVIN C. ROACH, NRC Office of General Counsel

4

5 LICENSEE WITNESSES:

6 JOHN FALLON, Director, Engineering Nuclear

7 Development, Duke Energy

8 ROBERT KITCHEN, Director, Engineering nuclear

9 Development, Duke Energy

10 ANAND K. SINGH, Technical Expert, Sargent & Lundy

11 PAUL SNEAD, Manager, Siting and Licensing Support,

12 Duke Energy

13 LAWRENCE TAYLOR, Lead, Procedure and Program

14 Development, Nuclear Development, Duke Energy

15 JOHN THRASHER, Director, Engineering Nuclear

16 Development, Duke Energy

17 LORIN YOUNG, Environmental Consultant, CH2M Hill

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1 NRC WITNESSES:

2 FRANK AKSTULEWICZ, Director, DNRL, NRO

3 DAN BARSS, NSIR

4 DONALD HABIB, Project Manager, NRO

5 ANDREW KUGLER, Senior Project Manager, NRO

6 RONALD LAVERA, NRO

7 SAMUEL LEE, Acting Deputy Director, DNLR, NRO

8 GERRY STIREWALT, Senior Geologist, NRO

9 MALLECIA SUTTON, Project Manager, NRO

10 VAUGHN THOMAS, Structural Engineer, NRO

11 BOYCE TRAVIS, Reactor Systems Engineer, NRO

12 JENNIFER UHLE, Director, NRO

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10 Adjourn

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P R O C E E D I N G S

9:03 a.m.

CHAIRMAN BURNS: I'll call this hearing to order. The purpose of today's hearing is to hear from the Applicant and from the NRC Staff on the Combined License Application for the Levy Nuclear Plant Units 1 and 2. This is a proceeding under Section 189(a) of the Atomic Energy Act. I want to welcome Duke Energy Florida, Staff, members of the public, and all those who may be observing our hearing today remotely. Again, the hearing is required under Section 189(a) of the Atomic Energy Act. The Commission will also be reviewing the adequacy of the Staff's environmental impact analysis per the National Environmental Policy Act of 1969, which everyone commonly refers to as NEPA.

And the order of, to explain the general order of the hearing, Duke and Staff will provide testimony and witness panels that will provide an overview of the Application, as well as address highlighted safety and environmental issues associated with the review. And the Commission questions will follow each panel. After the hearing, the Commission expects to issue a decision promptly with due regard to the complexity of the issues before it and it will

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1 -- after it makes the following necessary findings.

2 With respect to safety matters, the
3 Commission will determine, one, whether the applicable
4 standards and requirements of the Atomic Energy Act
5 and the Commission's regulations, particularly those
6 in 10 CFR 52.97 have been met, whether any required
7 notifications to other agencies or bodies have been
8 duly made, whether there is reasonable assurance that
9 the facility will be constructed and will operate in
10 conformity with the provisions of the Atomic Energy
11 Act and the Commission's regulations, whether the
12 Applicant is technically and financially qualified to
13 engage in the activities authorized under the license,
14 and whether the issuance of the license would be
15 inimical to the common defense and security or the
16 health and safety of the public.

17 With respect to environmental matters,
18 under 10 CFR 51.107(a), the Commission will determine
19 whether the requirements of the National Environmental
20 Policy Act Section 102(2)(a), (c), and (e), and the
21 applicable regulations in 10 CFR 51 have been met.
22 I'm going to test you all to see whether you remember
23 those sections later.

24 (Laughter.)

25 CHAIRMAN BURNS: Independently, the

1 Commission will consider the final balance among
2 conflicting factors contained in the record of the
3 proceeding with a view to determining the appropriate
4 action to be taken. Three, determine after weighing
5 the environmental, economic, technical, and other
6 benefits against environmental and other costs and
7 considering reasonable alternatives whether the
8 combined license should be issued, denied, or
9 appropriately conditioned to protect environmental
10 values, and determine whether the need for review
11 conducted by the Staff has been adequate.

12 This meeting is open to the public and we
13 do not anticipate the need to close the meeting to
14 discuss non-public information. If a party believes
15 that a response to a question may require reference to
16 non-public information, then that party should answer
17 the question to the extent practicable with
18 information in the publicly available record and file
19 any non-public response promptly after the hearing on
20 the non-public document. And presumably we will give
21 instructions on that if we face that situation.
22 Before we proceed with other procedural matters, I
23 would ask my fellow Commissioners whether they have
24 any other opening remarks. Commission Svinicki?

25 COMMISSIONER SVINICKI: Yes, thank you, Mr.

1 Chairman, for that context and explanation of what
2 we're engaged in today. There is also a tremendous
3 amount of development review and analysis that has
4 occurred by both the Applicant and the Staff leading
5 up to today. So, I welcome the Applicant to engage in
6 the defense of their Application and I thank the Staff
7 for all of their hard work and look forward to today's
8 review. Thank you.

9 CHAIRMAN BURNS: Thank you, Commissioner.
10 Commissioner Baran?

11 COMMISSIONER BARAN: Thanks, Mr. Chairman.
12 Well, this is my fourth uncontested hearing that I've
13 participated in, but my first involving the AP1000
14 reactor design. These hearings play an important role
15 in the Agency's process for determining whether to
16 issue a combined license. I thought that the prior
17 hearings went very smoothly and I found them to be
18 very valuable and I anticipate that today's hearing
19 will be just as informative. I look forward to your
20 presentations and responses to our questions. Thank
21 you.

22 CHAIRMAN BURNS: Thank you, Commissioners.
23 With that, we'll proceed with some of the other
24 procedural matters, that is the swearing in of
25 witnesses and admission of documents that have been

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1 identified by both the Staff and by the Applicant.
2 And I presume there are a lot of people in this room
3 who are witnesses, so I will provide you instructions
4 as how to go as we proceed to swear you in. But
5 first, I'm going to ask counsel for Duke to introduce
6 himself.

7 MR. LEWIS: Thank you. My name is David
8 Lewis, I'm with the law firm of Pillsbury, Winthrop,
9 Shaw, Pittman, and I have the privilege of
10 representing Duke.

11 CHAIRMAN BURNS: Okay. Thank you, Mr.
12 Lewis. What I'd ask you to do now is to read the
13 names of your witnesses and when the witness hears his
14 or her name called, I would ask you to stand.

15 MR. LEWIS: Duke Energy's witnesses are Mr.
16 Christopher Fallon, Mr. Robert Kitchen, Mr. John
17 Thrasher, Mr. Lawrence Taylor, Mr. Paul Snead, Dr.
18 A.K. Singh, and Mr. Lorin Young.

19 CHAIRMAN BURNS: Okay. Thank you,
20 gentlemen. I'm going to ask you to raise your right
21 hand and then repeat after me the oath. Do you swear
22 or affirm the testimony you will provide in this
23 proceeding is the truth, the whole truth, and nothing
24 but the truth?

25 (Witnesses sworn.)

1 CHAIRMAN BURNS: Thank you. Are there any
2 objections, counsel, to including the witness list
3 into the record?

4 MR. ROACH: No objections.

5 CHAIRMAN BURNS: Okay. Then the witness
6 list is admitted into the record.

7 (Whereupon, the above-referred to document
8 was received into evidence.)

9 CHAIRMAN BURNS: Gentlemen, you may sit
10 down. Second, with respect to admission of evidence,
11 I'm going to ask counsel for Duke whether there are
12 any changes to the exhibit list for the Applicant.

13 MR. LEWIS: There are no changes.

14 CHAIRMAN BURNS: Okay. Thank you. Would
15 you read the range of numbers of the exhibits to be
16 admitted?

17 MR. LEWIS: Yes. Duke Energy's exhibits
18 are number DEF-001 through DEF-012.

19 CHAIRMAN BURNS: Okay. Is there a motion
20 to admit those exhibits into the record?

21 MR. LEWIS: Yes, we --

22 CHAIRMAN BURNS: Is there any objection?

23 MR. ROACH: No objection.

24 CHAIRMAN BURNS: Okay. Absent any
25 objection, the exhibits and the exhibit lists are

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1 admitted into the record.

2 (Whereupon, the above-referred to
3 documents were received into evidence.)

4 CHAIRMAN BURNS: At this point, we'll also
5 then swear in the witnesses for the NRC Staff.
6 Counsel, would you introduce yourself?

7 MR. ROACH: Good morning. My name is Kevin
8 Roach, counsel for the NRC Staff.

9 CHAIRMAN BURNS: Again, what I'd ask you to
10 do is read the name of the witnesses for the Staff and
11 as each witness is named, please stand. And if you
12 cannot see me, I would ask you to move to a point in
13 the room where I can actually have eye contact with
14 you because I realize there are some folks who are
15 behind the pillars in the room. So, counsel -- and I
16 would ask the witness to stand and remain standing
17 until we administer the oath. So, counsel, you may
18 proceed.

19 MR. LEWIS: I would just note that from the
20 last witness list that the Staff filed on July 22,
21 there are four witnesses that will not be present,
22 Andy Campbell, Paul Harris, Yiu Law, and Wendell
23 Morton. So with that, I'll begin with the safety
24 witnesses, Frank Akstulewicz, Dennis Andrukat, Clinton
25 Ashley, Dan Barss, Anthony Bowers, Robert Caldwell,

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1 Michael Cheok, David Curtis, Stephanie Devlin-Gils,
2 Jennifer Dixon-Herrity, Steven Downey, James Downs,
3 Timothy Drzewiecki, Scott Flanders, John Frost, Greg
4 Galletti, Anne-Marie Grady, Vladimir Graizer, Donald
5 Habib, Charles Harbuck, Michelle Hart, Shawn Harwell,
6 Raul Hernandez, Charles Hinson, Kaihwa Hsu, Joel
7 Jenkins, Henry Jones, Rebecca Karas, James Kellum,
8 Edmund Kleed, Ronald LaVera, Samuel Lee, Renee Le,
9 Kosmas Lois, John Lubinski, Timothy Lupold, Michael
10 McCoppin, Matthew Mitchell, John Monninger, Charles
11 Murray, Eric Olvera, Vonna Ordaz, Pravin Patel,
12 Malcolm Patterson, Thomas Pham, Paul Pieringer,
13 Meralis Plaza-Toledo, Marie Pohida, Sheila Ray,
14 Richardo Rodriguez, John Rycyna, Sujit Samaddar,
15 Cayetano Santos, Eduardo Sastre-Fuentes, Thomas
16 Scarbrough, John Segala, Gerry Stirewalt, Angelo
17 Stubbs, Edward Stutzcage, Frank Talbot, Rao Tammara,
18 Albert Tardiff, Vaughn Thomas, Nebiyo Tiruneh, Boyce
19 Travis, Tung Truong, Richard Turttil, Jennifer Uhle,
20 Christopher Van Wert, Duncan White, Yuken Wong, Zuhan
21 Xi, Jack Zhao.

22 CHAIRMAN BURNS: That it?

23 MR. ROACH: We have environmental witnesses
24 as well.

25 CHAIRMAN BURNS: Oh, okay.

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1 (Laughter.)

2 MR. ROACH: Dan Barnhurst, Jack Cushing,
3 Jennifer Davis, Peyton Doub, Allen Fetter, Mohammed
4 Haque, Stacey Imboden, Andrew Kugler, Michael Masnik,
5 Daniel Mussatti, Donald Palmrose, Kevin Quinlan, and
6 Mallecia Sutton.

7 CHAIRMAN BURNS: Okay. I think everybody
8 can see me, so I'm going to ask the witnesses then to
9 raise their right hand and respond to the oath. Do
10 you swear or affirm that the testimony you will
11 provide in this proceeding will be the truth, the
12 whole truth, and nothing but the truth?

13 (Witnesses sworn.)

14 CHAIRMAN BURNS: Okay. You may be seated.
15 Are there any objections to including the witness --

16 MR. LEWIS: No objection.

17 CHAIRMAN BURNS: -- list into the record?
18 Thank you. So the witness list, with those amendments
19 that Mr. Roach noted is admitted into the record.

20 (Whereupon, the above-referred to document
21 was received into evidence.)

22 CHAIRMAN BURNS: I'll proceed to the
23 admission of the Staff evidence. Are there any
24 changes to the exhibit list?

25 MR. ROACH: None since we filed our

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1 reviewed list on July 26.

2 CHAIRMAN BURNS: Okay. Would you read,
3 counsel, the range of numbers of the exhibits to be
4 admitted?

5 MR. ROACH: NRC-001 through NRC-012.

6 CHAIRMAN BURNS: Okay. And you move to
7 admit those exhibits into the record?

8 MR. ROACH: We do so move.

9 CHAIRMAN BURNS: Are there any objections?

10 MR. LEWIS: No objections.

11 CHAIRMAN BURNS: Okay. In the absence of
12 any objections, the exhibits and the exhibit list are
13 admitted into the record.

14 (Whereupon, the above-referred to
15 documents were received into evidence.)

16 CHAIRMAN BURNS: And I think that takes
17 care of the preliminaries. We have the admission of
18 the witnesses who can testify. What I would note is,
19 on occasion in the past proceedings we have had
20 sometimes one of the parties call upon a witness or
21 would like to call upon a witness who has not been
22 admitted or has not taken the oath at that point.
23 Certainly that may happen, if that's the case, what I
24 would ask, and for any witness that comes up to the
25 podium, as opposed to being seated in front of us,

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1 please wait to be recognized by me. I will ask you
2 whether you've taken the oath and if you have not, I
3 will administer the oath at that time.

4 We'll begin then, I think, with our
5 overview panel to begin with the -- yes, the overview
6 panel from Duke. And I'll let you introduce
7 yourselves. And, again, what I would advise the
8 witnesses is they should assume that the Commission is
9 familiar with their prehearing filings. And I'll give
10 counsel an opportunity to move out of the way to
11 wherever we have you seated while the proceedings are
12 going on. So, again, the first two panels will be
13 overview panels, first from the Applicant, Duke, and
14 then by the Staff. Again, you can -- the witnesses
15 should assume that the Commission is familiar with the
16 prehearing filings before us. Again, I will ask you
17 to introduce yourselves, beginning with you, Mr.
18 Fallon.

19 MR. FALLON: Chris Fallon, Vice President
20 of Nuclear Development for Duke Energy.

21 MR. KITCHEN: Bob Kitchen, Director of
22 Licensing, Duke Energy.

23 MR. SNEAD: Paul Snead, Manager, Siting and
24 Licensing Support, Duke Energy.

25 CHAIRMAN BURNS: Okay. And you may

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1 proceed.

2 MR. FALLON: Thank you and good morning,
3 Commissioners. We're very pleased to be here. On
4 behalf of Duke Energy, on behalf of the employees and
5 customers of Duke Energy, we would like to begin by
6 thanking the NRC, especially the NRC Staff for its
7 diligence in conducting a thorough review of our
8 Application. Likewise, I want to recognize the
9 members of our Duke Energy team who have worked
10 tirelessly over the past several years to reach this
11 point.

12 As you are well aware, the work required
13 to get to this hearing is very challenging and we are
14 pleased to have the opportunity to discuss our Levy
15 COP Application with you. The development of the Levy
16 COLA has presented some unique challenges and learning
17 experiences for us in applying the Part 52 licensing
18 process. Our presentations today will focus on the
19 safety and environmental aspects that are unique to
20 Levy or those issues that have required evaluation
21 beyond what you've reviewed in previous mandatory
22 hearings.

23 Let me start by telling you about Duke
24 Energy and our capabilities to own and operate a
25 nuclear power plant. Duke Energy has been in service

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1 for over 150 years. Duke Energy, we have over 7.4
2 million customers, \$121 billion in assets, and our
3 market capitalization is approximately \$60 billion.
4 In addition to the financial resources to own a
5 nuclear power plant, Duke Energy has the experience
6 and skilled professionals to safely and efficiently
7 operate nuclear power plants.

8 Duke Energy is one of the largest nuclear
9 operators in the country, with 11 units at six sites.
10 Duke Energy has successful experience in the
11 construction of nuclear plants and has been safely
12 operating nuclear plants for over 45 years. All told,
13 Duke Energy has over 445 reactor years of operating
14 experience. Our Nuclear Generation Organization has
15 over 6,600 highly trained nuclear professionals. Duke
16 Energy has achieved consistently high nuclear fleet
17 performance. We have achieved 17 consecutive years
18 with an average fleet capacity factor greater than 90
19 percent and an excellent track record in personnel,
20 nuclear plant, and radiation safety.

21 Nuclear energy is very important to Duke
22 Energy. Duke Energy's customers and the communities
23 we serve have benefitted greatly from the Duke Energy
24 nuclear fleet. Duke electric rates are 20 to 30
25 percent below regional and national averages. Much of

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1 this is attributed to the investment in nuclear and
2 our excellent track record and performance. As such,
3 the Levy COL is an important asset to Duke Energy and
4 its customers.

5 We chose nuclear over other energy
6 alternatives based on several considerations. First
7 of all is cost. History has shown that nuclear energy
8 is competitive with other base load options when
9 evaluated over its 40 year design life. Second is
10 fuel diversity. Duke Energy currently has no nuclear
11 generation in the state of Florida. In addition to
12 the obvious need for diversity in generation
13 resources, we also face increasing requirements to
14 reduce greenhouse gas emissions. Carbon free nuclear
15 generation cannot be ignored in plans to achieve
16 further reduction in CO2 emissions.

17 We selected the AP1000 as our design for
18 a variety of reasons, chief among them being the
19 passive safety features and our familiarity with the
20 PWR technology. Duke Energy has over 365 reactor
21 years of operating experience with PWR technology.
22 Additionally, we found the AP1000's passive safety
23 features to be very attractive. Finally, the
24 opportunity to collaborate with other utilities in the
25 Southeast who have chose and are constructing the same

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1 AP1000 design offers significant advantages and we
2 have benefitted from this collaboration.

3 We chose the Levy site after a
4 comprehensive evaluation of alternative sites,
5 followed by extensive site characterization. The site
6 has excellent margin to withstand external hazards,
7 has been approved by the State, and is found to be the
8 least environmentally damaging practicable alternative
9 by the Army Corps of Engineers. Our final safety
10 analysis report and the NRC Staff Safety Evaluation
11 Report document the thorough safety review that has
12 been conducted and the plant's compliance with the
13 Atomic Energy Act and NRC regulations. Likewise, our
14 environmental report and the Staff's Final
15 Environmental Impact Statement document the thorough
16 environmental review that has been conducted in
17 compliance with NEPA.

18 Although we have not made a decision to
19 build, the ability to add emission free nuclear
20 generation in Florida is an important element of our
21 integrated resource planning. Our Integrated Resource
22 Plan, which is updated annually and filed with the
23 Florida Public Service Commission, fully supports the
24 need for base load power. In addition to the ongoing
25 demand in energy growth, Duke Energy Florida

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1 recognized the potential for unit retirement in the
2 next ten to 20 years. These retirements will be
3 driven by a combination of unit age and future
4 regulation, particularly, the implementation of future
5 carbon constraints. This will create further need for
6 the new base load generation that could be met by the
7 Levy Units.

8 In summary, Duke Energy believes it is
9 well positioned to construct, own, and operate an
10 additional nuclear plant. We have the financial
11 strength and the operational experience to make the
12 Levy project a success. Our staff of proven nuclear
13 professionals will ensure safe, reliable, economic,
14 and environmentally sound operation of the Levy Plant.
15 Thank you for your time and attention and we look
16 forward to discussing our COL Application with you.
17 At this point, I would like to introduce our
18 presenters for today's hearing.

19 Bob Kitchen has been with Duke Energy for
20 35 years with experience in plant operations,
21 maintenance, engineering, and major projects. He is
22 responsible for the licensing of Levy. John Thrasher
23 has worked for Duke Energy for 38 years with
24 experience in design and plant engineering. He is
25 responsible for the engineering support of the Levy

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1 project. Paul Snead has worked for Duke for 38 years
2 with experience in radiation protection and
3 environmental support of plant operation. He is
4 responsible for the environment support for Levy
5 license and permitting. Larry Taylor has worked for
6 Duke for 31 years and has significant experience as a
7 PWR Senior Reactor Operator and Shift Technical
8 Advisor.

9 Dr. A.K. Singh has worked for Sargent and
10 Lundy for over 40 years providing design, engineering,
11 and licensing support to nuclear utilities. Dr. Singh
12 is an expert in structural and earthquake engineering
13 and provided direct support for the Levy COLA
14 development and review. Lorin Young worked with CH2M
15 Hill and has over 20 years of experience in
16 environmental support. Mr. Young managed the
17 environmental fieldwork and the analysis required for
18 the Levy site characterization. At this point, I'd
19 like to turn it over to Bob Kitchen, who will now
20 provide an overview of the Levy site and licensing
21 activity.

22 MR. KITCHEN: Thank you, Chris. Good
23 morning, Commissioners. Paul Snead and I have planned
24 to provide some background for you about the site
25 itself. We're going to talk a little bit about our

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1 service territory, the area that we serve, and our
2 expectations there. Just a bit on the COLA structure
3 and how we've gone about putting that document
4 together. We're going to talk some about emergent
5 issues, of course we'll discuss that more when we get
6 to the safety panel or some items that the Commission
7 has indicated interest in. And Paul will give us an
8 environmental summary of impacts that we anticipate at
9 the Levy site. Next slide, please.

10 The slide that we have up here shows the
11 service territory. As you can see, we serve Central
12 and Western Florida. We currently have about 1.7
13 million customers. And like the rest of the country,
14 we had a bit of a downturn in growth with the
15 recession. We have begun to see that turn. Mostly
16 recently, we're seeing growth rates of about 1.3
17 percent in load growth and we anticipate about 1.5
18 percent growth per year over the next ten years. So,
19 as Chris mentioned, we have a need for base load power
20 that could be met by Levy.

21 As you can see from the map there, the
22 Levy Plant site is centrally located in our service
23 territory and positioned about 90 miles to the north
24 of St. Petersburg, Florida. Next slide, please. This
25 map shows a little closer view of the site area. The

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1 lower right corner is a map of Florida, the red area
2 there indicates the area of the map that's magnified
3 on part of the slide. The Levy site itself is shown
4 in the left center of the graph there, of the slide.

5 The Levy site is about nine and a half
6 miles to the northeast of the Crystal River Energy
7 Center that you can see on the coast on the left lower
8 corner and we're about eight miles inland from the
9 Gulf of Mexico. The site itself is about 3,100 acres,
10 but we also own an additional 2,000 acres adjacent to
11 the 3,100 acre Levy site, which provides us
12 opportunity should we want to expand other energy
13 sources in that area. A couple of features to point
14 out. In the center of the slide there, you see the
15 Cross-Florida Barge Canal.

16 The Cross-Florida Barge Canal is located
17 about three miles to the south of the Levy site. It's
18 an interesting project. That was a Corps of Engineers
19 project started in the 1960s and the intent was to run
20 a barge canal across the state of Florida from the
21 Gulf of Mexico to the Atlantic to provide commercial
22 traffic capability. And it was actually started, you
23 can see it went as far as Lake Rousseau. The project
24 was stopped due to concerns about environmental
25 impacts, specifically on the watershed here in

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1 Florida. And it was cancelled ultimately in 1971.

2 The reason I point out the Barge Canal is
3 we plan to make use of that Barge Canal for Levy.
4 Ultimately, our cooling water source is the Gulf of
5 Mexico, but our actual intake will be located on this
6 Barge Canal. The other purpose that we plan to make
7 with the Barge Canal is for traffic, shipment of large
8 components, modules, et cetera, that we can bring in
9 by barge on this Barge Canal to a barge slip that
10 we're going to install near Lake Rousseau and then be
11 able to haul these components by heavy haul road up to
12 the site three miles to the north.

13 One thing that is a bit different about
14 Levy, we don't have rail access to the site. We
15 looked at doing that originally and it just became
16 more difficult and we didn't think it was necessary
17 with the Barge Canal access. So that's a difference
18 that you see in Levy than what you've seen on others.
19 The other thing I want to point out, if I could have
20 the map back up so you can see, we're going to run the
21 cooling water, cooling tower blowdown from the Levy
22 site down to the Crystal River Energy Site. So that's
23 a distance of about 13 miles and you might question
24 why we did that.

25 Originally, we looked at the discharge

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1 from the plant going to the Gulf of Mexico straight
2 across and the more we looked at that, there were
3 significant environmental impacts, particularly
4 there's a sea grass preserve directly to the west of
5 the Levy site, that bay area you see there is an
6 environmentally preserved area. So it was certainly
7 undesirable for that reason and probably enough based
8 on that. The other concern is that the cost would be
9 considerable because of the shallowness of the Gulf of
10 Mexico and the distance that we would have to route
11 piping for that to work. So we made a decision to go
12 to the Crystal River Energy Complex and use the
13 existing discharge canal that's there for the other
14 power plants. Next slide, please.

15 This slide shows, this aerial view shows
16 the site itself. This view is particularly looking
17 towards the west or towards the Gulf. I put this in
18 here just so you get a feel for what the site looks
19 like. It is a greenfield site, but as you can see,
20 it's not -- it has been disturbed, it's not a pristine
21 site. In fact, this site has been used for over 100
22 years for pine tree plantations to support the pulp
23 paper industry. And if you look closely at that
24 photograph, you can see furrows where pine trees were
25 planted. So the site has been disturbed and was

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1 active used for silver culture when we purchased the
2 property.

3 We sited the Unit 1 and 2 -- Unit 1 would
4 be to the left, right in the center of the photograph
5 there. We sited Unit 1 and 2 for two, based on two
6 things. Our preliminary geologic investigations
7 indicated that the rock layer was a little more
8 shallow to the north, so we tended to weight the
9 siting to the northern area of the property. But we
10 also wanted to preserve space should we elect to build
11 additional power plants in this area. So that kind of
12 based our location for the two sites that you can see
13 here.

14 The other thing I'll mention, the roads
15 you see here, we didn't -- these are logging roads
16 that were in existence when we purchased the property.
17 So it's pretty much the way it looked at purchase.
18 Next slide, please. This view shows the Barge Canal
19 that I mentioned. This is looking straight up the
20 Barge Canal toward the Gulf of Mexico, it's eight
21 miles to the distance -- it's on the horizon there.
22 The other thing that's interesting about this
23 photograph is in the upper left corner, you can see
24 the Crystal River Energy Complex, you can see the
25 vapor plume from one of the cooling towers at a fossil

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1 plant there.

2 The Barge Canal, as I mentioned, in the
3 lower section there, you see the lock which exists
4 between the canal and Lake Rousseau. That lock is no
5 longer used. As I mentioned, the Canal is really just
6 for recreation use now, so that lock is no longer in
7 use, but it separates Lake Rousseau from the Canal.
8 Our intent is to put an intake structure for service
9 water cooling tower makeup as shown here on the Canal.
10 Just to the west of that, we plan to install a barge
11 slip, which we have an environmental permit to do.
12 That barge slip will allow us to bring in the
13 shipments that I mentioned earlier.

14 The other thing that's not shown here is
15 that we'll put in a heavy haul road, it's basically a
16 reinforced road that would be able to handle the
17 extreme weights and loads that we would want to ship
18 with modules and other large components that would
19 come in here and then be transported about three miles
20 up. Next slide, please. This is the Crystal River
21 Energy Complex that I've mentioned. Crystal River
22 Energy Complex originally sited five plants, Crystal
23 River 1 through 5, and it was about 3,000 megawatts
24 total power from the site.

25 During the period of time that we've been

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1 working on the Levy Application, there have been some
2 changes. Most notably, and I'm sure you're aware, the
3 Crystal River 3, which is our nuclear plant,
4 permanently ceased operation and is now in
5 decommissioning. There are four fossil plants
6 remaining. Currently, we have a combined cycle gas
7 generation unit that's being built adjacent and upon
8 completion of that generation, the Crystal River 1 and
9 2, which are fossil plants, will be removed from
10 service too because of the difficulty meeting air
11 emission standards. So the net effect of Crystal
12 River 1, 2, and 3 going away and the replacement with
13 the combined cycle gas generation is the net
14 generation output from the site basically remains
15 constant.

16 The other thing then, the real interest
17 that the Staff has on this site and you would have is
18 that, as I mentioned, we plan to use the discharge
19 canal. The discharge canal is the one shown on the
20 right in the photograph. We plan to use the discharge
21 canal for the Levy blowdown. The Crystal River 1, 2,
22 and 3 were once through cooling, so they used the
23 intake canal once through the condensers and then
24 discharged to the discharge. Crystal 4 and 5 is a
25 cooling tower.

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1 So one of the impacts that we had to
2 assess when the decision was announced to decommission
3 Crystal River 3 was to look at the impact that a
4 blowdown from Levy would have on that discharge canal.
5 Specifically, we looked at salinity impacts, radiation
6 effluent impacts, and thermal plume. And we assessed
7 those for the Crystal River 3 decommissioning. We
8 also assessed it for further reduction in flow with
9 Crystal River 1 and 2. There will be some flow
10 maintained through this canal even after removal of
11 those units from service. Next slide, please.

12 Our Levy Application, like the others that
13 have been presented here, AP1000, they are based on
14 Part 52, of course, it's a Combined License
15 Application. We submitted the Application in July
16 2008. And our Application, as you've seen with Vogtle
17 and V.C. Summer, incorporates the AP1000 Design
18 Control Document Revision 19, which is the Certified
19 AP1000 Design. And as the others, we have adopted the
20 Reference COL approach that the Staff and the
21 Commission have endorsed in the Regulatory Issue
22 Summary of 2006. The objective here is one issue, one
23 review, one solution.

24 So, in that light, our Application that
25 you have reviewed mirrors what you have seen in Vogtle

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1 and V.C. Summer where it could be standard. The only
2 place we deviate from standard text is site specific
3 requirements or some of the issues that we've talked
4 about. There have been, as we've gone through
5 detailed design for the AP1000, there have been some
6 issues that we have incorporated into our Application.
7 So, of course, that is a deviation from standard text.
8 But otherwise, our COLA -- I mean, our COLA structure
9 is the same as the previous AP1000s. In going through
10 this COLA, both Duke Energy and the Staff have done a
11 thorough review of the design and site characteristics
12 to ensure that we met requirements. Next page.

13 Emergent issues. One of the different
14 things with Levy, we've had to deal with emergent
15 issues. The ones that I'm talking about specifically
16 are related to AP1000 design. As the AP1000 has
17 progressed from a Certified Design to an actual design
18 in construction, the lead plants, primarily the Vogtle
19 and V.C. Summer plants, but to some extent the China
20 plants, have identified changes that need to be made.
21 And we've reviewed all the changes, we review the
22 design changes and license change packages that are
23 prepared to support those license holders to identify
24 changes that we felt needed to be incorporated into
25 the License Application.

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1 To do that, we used the NRC Interim Staff
2 Guidance 11, which identifies items that, if they're
3 identified after a "design freeze" would still need to
4 be reported to the Staff so they could consider prior
5 to the issuance of the Final Safety Evaluation Report.
6 The specific issues that we've identified, and there
7 are five, resulting from design, are shown here.
8 Condensate return design change, which we'll talk more
9 about in the safety panel. Main control room dose was
10 a change we incorporated to be able to ensure that the
11 main control room operator dose was maintained below
12 the GDC 19 requirement of five rem in accident
13 scenarios.

14 Main control room heatup was a change to
15 ensure the operator environment was suitable for good
16 human performance and also equipment qualification
17 requirements. Combustible gas control containment was
18 a change to ensure that the structural integrity of
19 containment was maintained following a hydrogen burn
20 after an accident and that the ITAAC correctly
21 reflected the results of that analysis. And then, the
22 last one, the source range, neutron flux doubling to
23 make sure that we met the requirements of IEEE-603,
24 which was a Part 50 requirement.

25 So these are the issues that we've

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1 identified from the design. And these are the
2 current, I think, in the AP1000 reality, this is the
3 only design that's in active construction and so, you
4 would expect as you go through design work, things
5 will be identified. In addition to the design
6 emergent issues, of course an emergent issue that
7 Levy's dealt with that's very significant is the
8 Fukushima response. Most significantly looking at
9 seismic, but also considering flooding. If you'll go
10 to the next slide?

11 I put this slide in here just to show the
12 large margin that we have with our seismic design.
13 The upper graph, the red curve is the certified
14 seismic design response spectrum for the AP1000. The
15 blue curve, and there are two, the blue curve is the
16 site response for Levy. The reason there are two is
17 one is prior to the Central Eastern U.S. Update and
18 the other is following the Central Eastern U.S.
19 Update. So the point I get from this picture is two,
20 there's a lot of margin at Levy on seismic and,
21 secondly, the implementation of Central Eastern U.S.
22 have little impact on the results. So the seismic,
23 we're very comfortable with the seismic capabilities
24 of the design and with what to expect at the site.

25 The other consideration of concern from

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1 Fukushima, of course, was flooding and the new plant
2 flooding analyses met the Staff and regulator
3 expectations for that. But I will say that in terms
4 of the tsunami, that we have a huge margin at Levy in
5 terms of the tsunami expert. Given a low seismic
6 area, you wouldn't expect a lot of vulnerability there
7 and our analysis shows that. The next slide, please.
8 Paul will discuss environmental impacts.

9 MR. SNEAD: Thank you, Bob. Duke Energy,
10 in our Application, and the NRC Staff have done a very
11 thorough review and analysis of potential
12 environmental impacts. Both the environmental report
13 and the final environmental impact statement
14 determined small to moderate impacts, other than a
15 large positive economic benefit for Levy County.
16 There was a robust site selection process that was
17 followed and the Final Environmental Impact Statement
18 determined that there was no obviously superior
19 alternative site to the Levy site.

20 In the state of Florida, we have the
21 Florida Power Plant Siting Act, which requires the
22 State to certify any proposed power plant. We
23 received the site certification for the Levy site from
24 the State of Florida in August 2009. That
25 certification included with it the 401 Water Quality

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1 Certification and the Coastal Zone Management Act
2 Certification. It's of interest to note that the
3 environmental report which was prepared as part of the
4 COLA and that application was also used with the site
5 certification application with the State of Florida
6 and the same information was reviewed by the State in
7 that process. The last bullet on the slide notes that
8 the Army Corps of Engineers 404 Permit was issued in
9 December 2015, which completed an extensive review by
10 the Corps of our mitigation plans associated with
11 wetland impacts for the project. And, Bob, I think
12 that concludes our --

13 MR. KITCHEN: Next slide, please. That
14 does conclude our presentation. In summary, I will
15 say that I think we feel that the Levy site is an
16 excellent location for power. It provides good
17 access. As I've shown, it's for us centrally located
18 in our service area. And we think the site has good
19 properties for the AP1000 design. It's fully bounded
20 by the AP1000 parameters, so in terms of that, the
21 envelope fits well. And as I show, we have a large
22 margin to seismic requirements at the Levy site.

23 The other thing just in summary, the
24 emergent design issues have been thoroughly reviewed
25 and analyzed and we've concluded and the Staff agrees

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1 that they've been appropriately addressed. And as you
2 can see and Paul just discussed, environmental
3 considerations have been addressed and permits
4 required for construction have been issued. That
5 concludes our overview.

6 CHAIRMAN BURNS: Well, thank you very much
7 for the testimony. Just to explain before we begin
8 with the questioning, we'll have Commissioner
9 questions after each of the overview panels and then
10 we'll have in the subsequent sessions, the safety
11 panel and the environment panel, both the Applicant
12 and the Staff will testify and then it will be
13 followed by an opportunity for Commission questions.
14 And generally, while the Commissioners have an
15 opportunity to, if you will, bank their time as they
16 see fit to focus on particular questions. And we will
17 also rotate the order of questioning during the day.

18 To start off, I start off the first set of
19 the questions with the overview. I just had a couple
20 questions in this area. I mean, one of -- this is not
21 unusual, I think the last, one of the last hearings,
22 the last one or two hearings we've had on COLs for
23 South Texas and Fermi have also been instances in
24 which there's a, what I'll call a deferred decision to
25 whether to actually begin construction or proceed with

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1 actions under the license to construct and, obviously,
2 move toward operation. And one of the findings the
3 Commission has to make to issue a combined license is
4 that the Applicant is technically qualified to engage
5 in the activities authorized, which include both the
6 construction and operation of the facility.

7 Right now, as you've indicated, there is
8 not a particular plan or commitment to build Levy
9 Units 1 and 2, how would you -- one of my questions
10 would be, how -- will you explain the process would
11 work if Duke does not expect a decision to actually
12 construct Units 1 and 2 until several years down the
13 road? And particularly I'm interested in what do you
14 do to ensure knowledge management for a possible
15 future constructor to ensure that they are technically
16 qualified to do so?

17 MR. KITCHEN: Well, there's several things
18 in that. We have, obviously, an organization in place
19 consisting of engineering and licensing and operations
20 experienced personnel to support the license
21 maintenance. We actually have a very detailed plan in
22 place that we've developed that describes what actions
23 are required and what our plans are moving forward to
24 update the license. As we mentioned in the overview,
25 we have the advantage, sometimes it feels like a

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1 disadvantage, but the advantage is truly there for the
2 plants under construction, completing the design.

3 We know we have a number of license
4 amendments and departures that we'll need to
5 implement. We've been tracking those very closely and
6 we have a detailed database that tracks the sequence
7 that those were completed and what those changes were
8 and the impacts they have on our license. We also
9 have databases in place that have captured all
10 licensing actions. I'm not talking just ITAAC and
11 license conditions, those are certainly in there, but
12 we have all of the statements that are commitments in
13 the FSAR and, for that matter, the DCD captured in the
14 database, which is several thousand items per unit
15 that we need to implement.

16 And those are categorized by milestone.
17 So we know that these are activities we need to do
18 prior to construction or prior to the start of a
19 particular activity, and all those are loaded in. So
20 with those things in place, we certainly have a good
21 base for knowledge transfer and we plan to implement
22 that. The other thing, we just recently responded to
23 the Regulatory Issue Summary, literally just last week
24 to the Staff, 2016, I think it's 08, on what are the
25 plans going forward for the next three years. And

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1 that's really for resource planning, but there is that
2 that indicates to the Staff and we have discussed that
3 with them as well.

4 And I guess the final thing I would say is
5 that Duke, as Chris outlined, we have a significant
6 history in nuclear. We also -- Duke has a, at least
7 from my background, that not all utilities do
8 construct themselves, engineer and construct, and Duke
9 has done that. So we have a good experience base
10 within the company of what it takes to plan, design,
11 and construct and operate.

12 CHAIRMAN BURNS: Great. Thank you. Mr.
13 Snead, one of the -- in touching on the other types of
14 permits that you have, you have touch on the Florida
15 permits that you're required to have, is there a
16 particular duration for those permits?

17 MR. SNEAD: No. The site certification is
18 valid for the life of the project, unless we go in and
19 had to modify the certifications for some reason, and
20 then it would be modified. But it's good for the life
21 of the project.

22 CHAIRMAN BURNS: Okay. Thank you. One
23 other question, this is perhaps more a detail question
24 on the site itself, the Canal, I forget what the name
25 of the Canal is, but this Canal that started and

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1 stopped at the Lake --

2 COMMISSIONER SVINICKI: Cross-Florida Barge
3 Canal.

4 CHAIRMAN BURNS: The Cross-Florida Barge
5 Canal, thank you, Commissioner. You showed a map of
6 this indicating where the site was, but also
7 indicating other land, is it your property up to the
8 edge of the barge area or is that -- I'm just trying
9 to understand where that --

10 MR. SNEAD: I can answer that,
11 Commissioner. Basically, we own all the land south of
12 the Levy project down to County Road 40, which is
13 right parallel to the --

14 CHAIRMAN BURNS: Okay.

15 MR. SNEAD: -- Cross-Florida Barge Canal.
16 The actual land immediately surrounding the Cross-
17 Florida Barge Canal is owned by the State of Florida.

18 CHAIRMAN BURNS: Okay.

19 MR. SNEAD: It was -- after the
20 cancellation of the project, those lands were deeded
21 by the Federal Government to the State of Florida for
22 the Office of Greenways and Trails. And they've been
23 managing the lands for recreational purposes since
24 that time.

25 CHAIRMAN BURNS: Okay. And so, as I

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1 understand it, part of -- when you showed the picture
2 of the Canal, one of the things in order to be able to
3 move heavy components, other types of material out,
4 part of that would be building a -- you would be
5 building a road that could have the capacity to take
6 heavy loads across, on into the site. Is that --

7 MR. SNEAD: Correct. And you see that
8 narrow body of water to the right --

9 CHAIRMAN BURNS: Right.

10 MR. SNEAD: -- on the slide there? That's
11 the bypass channel that allows the Withlacoochee River
12 to bypass the lock and continue the river run.

13 CHAIRMAN BURNS: Oh, okay.

14 MR. SNEAD: So we would have a bridge
15 across that narrow body of water with that heavy haul
16 road. And the only public road we would have to cross
17 with these construction materials is County Road 40.
18 So it minimizes impacts on traffic for major commodity
19 hauls and things like that.

20 CHAIRMAN BURNS: Okay. Thank you. My time
21 is up. Commissioner Svinicki?

22 COMMISSIONER SVINICKI: Thank you,
23 Chairman. I'm just waiting for the clock to be reset
24 since --

25 CHAIRMAN BURNS: Okay.

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1 COMMISSIONER SVINICKI: -- we're going to
2 be precise today. Thank you. Well, welcome again to
3 Duke, the Applicant. I may be a little unique among
4 Commissioners in that I had the opportunity visit the
5 proposed Levy site. It was eight years ago, so it's
6 been a long road to get to today, as I was mentioning.
7 We had also a chance -- on your Slide 5, you've got
8 the Cross-Florida Barge Canal, as part of my visit
9 with Progress Energy Florida, I guess it was, we drove
10 over to that lock structure and climbed up there on
11 the top. So in addition to being a bit of a
12 historical oddity, I do remember that the Barge Canal
13 makes a real visual impact. It's a significant piece
14 of infrastructure there.

15 I have a few questions. I have reviewed
16 a lot of the record, of course, in preparation for
17 today and I just want to be clear that it may be that
18 some of the questions that I'm highlighting today are
19 actually somewhere in that very voluminous record.
20 I'm not in any way trying to indicate through these
21 questions that there was anything deficient in the
22 record, that the Applicant and the Staff review that's
23 built, again, a tremendous volume of material.

24 Some of this is just to perfect and
25 clarify my understanding leading up to the findings

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1 that the Commission will need to make if it indeed
2 authorizes the issuance of the license. You mentioned
3 the Integrated Resource Plan that's filed with the
4 Florida PSC, what is the planning horizon for that?
5 Is it ten years or 20 years or does it have a range of
6 outlooks?

7 MR. KITCHEN: In Florida, the Integrated
8 Resource Plan is a ten year plan.

9 COMMISSIONER SVINICKI: Okay. And you
10 mentioned that growth rates are anticipated or perhaps
11 projected of 1.5 percent per year for the next ten
12 years, did I have that correct?

13 MR. KITCHEN: Yes.

14 COMMISSIONER SVINICKI: And that there is
15 an identified need, therefore, for new base load power
16 over that range. Is it possible given uncertainties
17 to answer the following question, is there a time
18 period or a range of years within which the initiation
19 of construction of Levy becomes a competitive option
20 when looking at adding that base load generation? Are
21 there too many variables in terms of the retirement of
22 other assets or other requirements that might exist?
23 Or is there kind of some range over the planning
24 horizon or beyond the ten year IRP that the
25 construction of Levy would become kind of in the mix

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1 in terms of probability of initiating construction?

2 MR. KITCHEN: We started, and Chris may
3 add, currently the -- we look at several factors in
4 terms -- as any Integrated Resource Plan and all
5 utilities have, we look at energy cost, of course the
6 generation of need, anticipated decommissionings. And
7 carbon is a big uncertainty for us, we don't know the
8 impact there. I think the big driver in Florida for
9 us is demand, which is there, but also the fuel mix.
10 As Chris mentioned, we have no nuclear in Florida now.
11 And so, the additions that we have made, and as I
12 mentioned, there's a combined cycle plant being built,
13 have been gas. And we're approaching almost 80
14 percent gas. So I think fuel mix is a big driver.

15 To answer your specific question, is there
16 a time frame certain? I would have to say, no, at
17 this point. It depends on so many factors and there's
18 a lot of uncertainty with where the clean power, what
19 requirements are going to be on emissions, how do we
20 meet that with or without nuclear, that I don't think
21 I could answer a specific date.

22 COMMISSIONER SVINICKI: Okay, yes. And I
23 wasn't looking for that, just again, if issued the
24 licenses have an initial period, if I have this right,
25 of 40 years. So I'm trying to get a sense of when

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1 would the probability of the Levy Units being a
2 competitive choice begin to emerge in that 40 year
3 period. And it sounds like -- again, I've
4 acknowledged up front what a difficult question,
5 there's so many parameters in that decision making
6 matrix that I understand the difficult.

7 So, what I'll take from the answer is
8 that, at the time, there is not an identified period
9 of time within which you could project that it would
10 become competitive or that this would become a
11 preferred option. So, that's the conclusion that I'll
12 draw from the difficulty of the uncertainty. Having
13 visited the site eight years ago and then studying the
14 record that's been built, there certainly has been a
15 lot of field work and subsequent analysis by the Staff
16 in support of looking at the alternative locations
17 that were at least considered by Progress Energy back
18 in the day prior to submitting Levy as the proposal.

19 Is there -- how would you characterize at
20 a very high level the things that resulted in Levy
21 being the preferred of the candidate sites that were
22 looked at? Was there some -- is it things like being
23 able to have the barge access or something? What are
24 the factors that tipped that equation most
25 significantly in terms of Levy and against the other

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1 sites?

2 MR. SNEAD: Well, Commissioner, I would say
3 that some of the factors that made both the Crystal
4 River site and the Levy site more preferable to the
5 other sites, the other sites were more riverine --

6 COMMISSIONER SVINICKI: Okay.

7 MR. SNEAD: -- based and with the need for
8 reservoir support in having the demands on fresh water
9 supplies in the state of Florida, the use of salt
10 water for condensate cooling was certainly a lot more
11 advantageous from an environmental impact standpoint.
12 So I think that drove primarily those two sites to
13 being preferable to the other sites that we looked at.
14 Then, between those two sites, they were, from an
15 environmental impact standpoint, they were essentially
16 equivalent to one another.

17 COMMISSIONER SVINICKI: But there was
18 consideration, was there not, and again, back in this
19 time period, Crystal River Nuclear Unit was an
20 operating unit --

21 MR. SNEAD: Correct.

22 COMMISSIONER SVINICKI: -- there was, my
23 understanding is there was consideration of the
24 concentration of generating assets --

25 MR. SNEAD: Right.

1 COMMISSIONER SVINICKI: -- then that would
2 be at Crystal River and that might have edged Levy
3 over Crystal River between those two. Is that
4 correct?

5 MR. SNEAD: Correct. It was more of a
6 practicality, a practicable solution if you would, to
7 separate those resources, not concentrate so much
8 generation at one site. And as Bob mentioned, with
9 the combined cycle plant being built to replace the
10 power generation of Units 1, 2, and 3, that situation
11 still exists at the Crystal River Energy Complex. So
12 the decision to choose the Levy site in preference
13 over the Crystal River site is still a valid one.

14 COMMISSIONER SVINICKI: Okay. Thank you.
15 And the Staff has provided and it is in the record a
16 very substantive analysis of new and significant
17 information over the intervening years. So I'm aware
18 of the fact that the Staff did look at any changed
19 circumstances and has provided that analysis. With
20 that, I'll close. Thank you, Mr. Chairman.

21 CHAIRMAN BURNS: Thank you, Commissioner.
22 Commissioner Baran?

23 COMMISSIONER BARAN: Thanks. Thank you
24 again for being here and for your presentations.
25 Under NRC's regulations, when NRC issues a combined

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1 license, the licensee also automatically receives a
2 general license to construct and operate an
3 independent spent fuel storage installation. If Duke
4 receives a combined license and if you ultimately opt
5 to construct the Levy Units, do you expect to
6 construct an ISFSI at the Levy site?

7 MR. KITCHEN: Let me address that. I don't
8 know that we can answer that.

9 COMMISSIONER BARAN: Okay.

10 MR. KITCHEN: And the reason I say that is
11 our need for an additional storage to the AP1000 spent
12 fuel pool would be years out. And so, the question
13 you're really asking is, what options would we have
14 for dry storage? Well, what options would we have for
15 spent fuel storage. So, the factors there would be,
16 when do we actually construct, what options are there
17 for fuel long-term storage at that time, is there a
18 government repository, or would we need dry storage?
19 If we were to make that decision, then we, as you
20 mentioned, would have the ability to move forward. We
21 don't have a plan currently for that.

22 COMMISSIONER BARAN: Okay. Just uncertain
23 at this point. Okay. Thanks. That's all I have for
24 this panel.

25 CHAIRMAN BURNS: Okay. Again, thank you,

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1 gentlemen, for your testimony. We'll take just a
2 moment here to call the Staff witnesses for the
3 overview panel forward. And as with our previous
4 panel, this is an opportunity for the NRC Staff to
5 provide an overview of their review of the Levy
6 Application. Again, I remind the witnesses on this
7 panel that they are under oath and that they should
8 assume that the Commission is familiar with the
9 prehearing filings. And with that, I'll ask the
10 panelists to introduce themselves, starting with Mr.
11 Akstulewicz.

12 MR. AKSTULEWICZ: Frank Akstulewicz,
13 Director of New Reactor Licensing, Office of New
14 Reactors.

15 MS. UHLE: Jennifer Uhle, Director of the
16 Office of New Reactors.

17 MR. LEE: Sam Lee, Acting Deputy Director
18 of Division of New Reactor Licensing in the Office of
19 New Reactors.

20 CHAIRMAN BURNS: Okay. And I'll let you
21 proceed. Is it -- oh, we'll take a brief moment.

22 MS. UHLE: Good morning, Chairman Burns and
23 Commissioners. On behalf of the Levy Review Team, we
24 are certainly pleased to address the Commission at
25 this mandatory hearing today. So, with me on this

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1 panel, as you know, Frank Akstulewicz to my right and
2 Sam Lee to my left. You've seen other members of the
3 Review Team as they have taken the oath this morning.
4 So, we will present on this panel the results of --
5 or, excuse me, today, in the other panels subsequent
6 to this panel as well, we will present the results of
7 the Staff's review of the Application for the Combined
8 Licenses or COLs for the Levy Nuclear Plant Units 1
9 and 2 proposed to be located in Levy County, Florida.

10 So, the Staff's Final Environmental Impact
11 Statement was completed in 2012 and the Staff's Final
12 Safety Evaluation Report was completed in late May of
13 this year. These documents are the culmination of an
14 eight year review by the Staff and this review effort
15 was done by several groups of people that were
16 composed of scientists, engineers, attorneys, and
17 administrative professionals from across the Agency,
18 as well as other agencies and our consultants. So,
19 next slide, please.

20 So, during this panel, Mr. Akstulewicz and
21 Mr. Lee will briefly describe the Staff's evaluation
22 of the Levy Nuclear Plant COL Application. They will
23 present an overview of both the safety review as well
24 as the environmental review. And we will also talk in
25 our discussion of the safety review a bit on the

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1 departures of the Certified Design. The Staff
2 docketed the Application in July 2008 and since then,
3 the Staff has expended approximately 83,000 hours on
4 the safety and environmental reviews. The effort has
5 involved well over 100 engineers, scientists, and
6 technical specialists.

7 During this time, the Staff conducted
8 approximately 100 public meetings and conference calls
9 in support of the review. The Applicant responded to
10 approximately 690 Staff Requests for Additional
11 Information, of which 580 were associated with the
12 safety review and, therefore, over 110 with the
13 environmental review. In addition, the Staff
14 considered over 2,800 comments on the Draft
15 Environmental Impact Statement. Contractors working
16 with the Staff devoted approximately 39,000 hours to
17 support both the environmental and the safety review.
18 So, as you can tell, the review of the Application was
19 a very thorough and complete effort.

20 Within the NRC, the offices that
21 contributed to the review include the Office of
22 Nuclear Security and Incident Response, which looked
23 at emergency preparedness and security areas, the
24 Office of Nuclear Reactor Regulation evaluated
25 financial qualification aspects of the Application,

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1 and the Office of Nuclear Materials, Safety, and
2 Safeguards, which supported the reviews for licenses
3 necessary under Part 70 for special nuclear material,
4 Part 30 for by-product material, and Part 40 for
5 source material, were also part of the team.

6 The Office of the General Counsel reviewed
7 the SER and Environmental Impact Statement. And
8 finally, the Advisory Committee on Reactor Safeguards
9 reviewed and reported on the safety aspects of the
10 Levy Application in accordance with the regulatory
11 requirements of 10 CFR 52.87. In addition, the Region
12 II Office supported environmental meetings in the
13 community near the Levy site. The U.S. Army Corps of
14 Engineers also contributed and that part of the
15 activities was done by the Jackson Field District.
16 And then also, the Department of Homeland Security
17 contributed to the NRC review.

18 The SER, the Safety Evaluation Report, and
19 the Environmental Impact Statement, or EIS, and our
20 statement in support of the hearing provide what the
21 Staff considers to be an adequate basis for making the
22 necessary regulatory findings. Next slide, please.
23 So, to introduce some detail, on July 30, 2008,
24 representatives of Progress Energy Florida delivered
25 an Application dated July 28, 2008 for a COL to

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1 construct and operate two AP1000 units at a greenfield
2 site in Levy County, Florida.

3 Following a corporate merger,
4 reorganization, and a name change, Duke Energy
5 Florida, LLC became the Applicant in April 2013. So,
6 Duke Energy Florida, LLC would be licensed to
7 construct and operate the units if approved. Next
8 slide. The Levy Nuclear Plant Units 1 and 2 COL
9 Application incorporates by reference the AP1000
10 Design Certification Document Revision 19 and Appendix
11 D to 10 CFR 52, the AP1000 Design Certification Rule.
12 The AP1000 design was certified by rule in 2011. Next
13 slide, please.

14 The Levy Units 1 and 2 COL Application
15 contains material incorporated by reference from the
16 AP1000 Certified Design. Based on the finality that
17 NRC regulations afford to a Certified Design, the
18 scope of the Staff's COL technical review did not
19 include items that were resolved within the scope of
20 the Certified Design. Instead, the COL review focused
21 on plant specific aspects of the Application that are
22 the responsibility of the Applicant, such as
23 operational program, site specific design, combined
24 license information items, and departures from the
25 Certified Design.

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1 As of now, the Levy Combined License
2 Application is one of three applications referencing
3 the AP1000 Certified Design currently under Staff
4 review. In addition, the Commission has previously
5 issued licenses for two AP1000 Combined License
6 Applications covering four units currently under
7 construction. So I'd now like to turn the
8 presentation over to Mr. Frank Akstulewicz.

9 MR. AKSTULEWICZ: Thank you, Jennifer. Good
10 morning, Chairman; good morning, Commissioners. As you
11 heard, I'm the Director in the Division of New Reactor
12 Licensing and the Office of New Reactors. Next slide,
13 please.

14 In accordance with 10 CFR 52.87, the
15 Advisory Committee on Reactor Safeguards examined the
16 Staff's safety review of the Levy Nuclear Plant Units
17 1 and 2 COL application. The Applicant and the Staff
18 supported five AP1000 subcommittee meetings
19 specifically related to the application and its safety
20 evaluation. The Staff presented the results of its
21 review of the application to the full ACRS initially
22 in December 2011, and more recently, April of 2016.
23 Next slide, please.

24 As a result of the December 2011 Full
25 Committee meeting the ACRS issued a report on December

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1 7, 2011 concluding that there is reasonable assurance
2 that the Levy Nuclear Plant Units 1 and 2 can be built
3 and operated without undue risk to public health and
4 safety. This ACRS report recommended approval of the
5 COL application following implementation of two
6 recommendations regarding tsunami hazards.

7 The first ACRS recommendation was to
8 establish a license condition to require inclusion of
9 a probabilistic evaluation of the tsunami hazard in
10 the Site-Specific Full Scope Probabilistic Risk
11 Assessment that is required prior to fuel load.

12 The second ACRS recommendation was that
13 the Staff should verify that the inclusion of the
14 nearby shipping canal and watercourse would not
15 significantly affect the conclusions of its
16 Deterministic Tsunami Hazard Evaluation.

17 In its response dated January 24th, 2012,
18 the Staff explained that the license condition is not
19 appropriate because the Staff's independent analysis
20 confirmed the Applicant's results that the risk from
21 flooding by conservatively calculated maximum tsunami
22 is not significant for this site. In addition, the
23 Staff screened out flooding events from further
24 analysis because the risk of external flooding was
25 negligible in accordance with Regulatory Guide 1.200

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1 which is titled "An Approach For Determining the
2 Technical Accuracy of Probabilistic Risk Assessments
3 for Risk-Informed Activities." The Staff response also
4 described the basis for its conclusion that the
5 shipping canal in question had been adequately
6 considered.

7 In April of 2016, the ACRS Full Committee
8 reviewed the five design changes associated with the
9 Applicant's request for exemptions for the AP1000
10 certified design. The design change associated with
11 condensate return will be discussed later today during
12 the Safety Panel. The other changes were related to
13 the main control room dose, main control room heat-up,
14 combustible gas control and containment, and the plant
15 monitoring system compliance with IEEE Standard 603-
16 1991 titled "IEEE Standard Criteria for Safety Systems
17 for Nuclear Power Generating Stations."

18 On April 18th, 2016, the ACRS issued a
19 report concluding that these exemptions are needed to
20 enable the certified design to perform intended
21 functions and should be approved. The ACRS also
22 recommended that the Staff evaluate on a generic basis
23 whether there are any Lessons Learned regarding the
24 oversight of the Quality Assurance Program during
25 development of designs seeking certification under 10

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1 CFR Part 52.

2 The Staff responded on May 22nd, 2016
3 committing to schedule a future briefing of the ACRS
4 to discuss the recommendation of the generic concern.
5 After completing its response to the ACRS, the Staff
6 issued the Levy Nuclear Plant Units 1 and 2 Final
7 Safety Evaluation in May of 2016.

8 The five aforementioned design changes
9 were not included in the currently licensed Vogtle and
10 Summer COL applications that also incorporate the
11 AP1000 reference design. These design changes include
12 changes to Tier 1 and Tier 2 information, as well as
13 technical specifications in the AP1000 design control
14 document. Because they involve changes to Tier 1
15 information and technical specifications, the
16 Applicant included exemptions for the changes in this
17 COL application.

18 The two other COL applicants incorporating
19 the AP1000 certified design currently under review by
20 the Staff, which are the William States Lee Units 1
21 and 2, and the Turkey Point Units 6 and 7 have
22 requested the same exemptions and departures
23 associated with these changes that are submitted by
24 the Levy Applicant.

25 Licensees for the fuller licensed AP1000

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1 plants under construction, the Vogtle and Summer
2 units, have committed to implement these design
3 changes using the LAR process in the future.
4 Incorporating the same design changes into all 10 of
5 the AP1000 COLs allows for a more efficient Staff
6 review as envisioned under the design-centered review
7 approach and maintains design consistency across the
8 AP1000 design center. Next slide, please.

9 The Staff prepared SECY-16-0076 dated June
10 10th, 2016 to support this mandatory hearing. In its
11 paper, the Staff summarized the basis that would
12 support the Commission's determination that the
13 Staff's review is adequate to support the findings set
14 forth in both 10 CFR 52.97 and 10 CFR 51.107. The
15 Staff SECY paper provided an overview of the findings
16 that support the issuance of the COLs for the Levy
17 Nuclear Units 1 and 2.

18 In order to issue a COL, the Commission
19 must find that each of the findings in 10 CFR 52.97
20 are met, and I will summarize generally the Staff's
21 basis supporting each finding.

22 First, the applicable standards and
23 requirements of the Atomic Energy Act and the
24 Commission regulations have been met. The Staff review
25 and evaluation of the application against the

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1 applicable criteria in 10 CFR -- I'm sorry, the Staff
2 reviewed and evaluated the application against the
3 applicable criteria in 10 CFR. Based on its review as
4 documented in the Final Safety Evaluation and its
5 Final Impact Statement, the Staff concludes that the
6 applicable standards and requirements of the Atomic
7 Energy Act, as amended, and the Commission's
8 regulations have been met.

9 Second, any required notifications to
10 other agencies or bodies have been duly made. As
11 documented in the SECY paper, all required
12 notifications such as to the Public Service Commission
13 of Florida, as well as the required Federal Register
14 notifications have been made. Next slide, please.

15 Third, there is reasonable assurance that
16 the facility will be constructed and operated in
17 conformity with the license and provisions of the
18 Atomic Energy Act and the Commission's regulations. As
19 the SECY paper states, the Staff believes that its
20 review as documented in its Final SER and EIS, and the
21 Inspections, Tests, Analysis, and Acceptance Criteria,
22 or ITAAC, and the license conditions as part of the
23 license provide the necessary assurance that the unit
24 will be constructed and operated as required.

25 Fourth, the Applicant is technically

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1 qualified and financially qualified to engage in the
2 activities authorized. The technical and financial
3 qualifications of the Applicants are summarized in the
4 SECY paper and documented in detail in Chapters 1, 13,
5 and 17 of the Final Safety Evaluation Report. Next
6 slide, please.

7 Fifth, the issuance of the COL will not be
8 inimical to the common defense and security, or the
9 public health and safety. The specific basis for an
10 inimicality finding have been provided in the Staff's
11 SECY paper.

12 And sixth, the findings required by
13 Subpart A of 10 CFR have been made. The Staff's
14 conclusions regarding the findings required by Subpart
15 A will be presented by Sam Lee, who will now provide
16 an overview of the Staff's Environmental Review. Next
17 slide, please.

18 MR. LEE: Thank you, and good morning, Mr.
19 Chairman and Commissioners.

20 As Jennifer indicated earlier, I am the
21 Acting Deputy Director of Division of New Reactor
22 Licensing in the Office of New Reactors. I will be
23 discussing the Environmental Review and will provide
24 an overview of the process we used in conducting this
25 review, the draft Summary Record of Decision, and the

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1 Staff's recommendation as a result of the review. I
2 will also discuss the regulatory findings that need to
3 be made before licenses can be granted.

4 The Staff prepared an Environmental Impact
5 Statement, EIS, for the Levy Nuclear Plant Units 1 and
6 2 Combined License application in accordance with
7 National Environmental Policy Act of 1969, and the
8 requirements of 10 CFR Part 51. The Staff prepared the
9 EIS based on its independent assessment of the
10 information provided by the Applicant, and the
11 information developed independently by the Staff,
12 including information gathered through consultations
13 with other agencies.

14 The U.S. Army Corps of Engineers fully
15 participated with the Staff as a cooperating agency in
16 preparing the Levy EIS under the terms of an Updated
17 Memorandum of Understanding between the NRC and the
18 Corps for the review of nuclear power plant
19 applications. As a member of the Environmental Review
20 Team, the Corps Staff participated in site visits,
21 consultations with other agencies, and the development
22 of the draft EIS and final EIS. Next slide, please.

23 The NRC began the Environmental Review
24 process for the Levy COL application by publishing a
25 Notice of Intent to Prepare an EIS and conduct scoping

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1 in the Federal Register on October 24, 2008. Two
2 scoping meetings were held to obtain public input on
3 the scope of the Environmental Review in Crystal
4 River, Florida on December 4th, 2008. The Staff
5 reviewed the comments received during the scoping
6 process and responses were developed for each comment.
7 These responses are documented in a Scoping Summary
8 Report and are also provided in Appendix E of the
9 Final EIS. The Staff contacted federal, state,
10 regional, and local agencies and federally recognized
11 Indian tribes during the scoping period to solicit
12 comments, and these comments were considered in
13 preparing the draft EIS.

14 Specifically, the Staff consulted with the
15 U.S. Fish and Wildlife Service, National Marine
16 Fishery Service, federally recognized Indian tribes,
17 the Florida State Historic Preservation Office, and
18 other agencies, as required by the Endangered Species
19 Act, National Historic Preservation Act, and other
20 statutes. Next slide, please.

21 The draft EIS was issued in August 2010.
22 A 75-day comment period for the draft EIS began on
23 August 13, 2010, the date of the publication of the
24 U.S. Environmental Protection Agency Notice of
25 Availability. The Staff held two public meetings on

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1 September 23rd, 2010 in Crystal River, Florida to
2 describe the results of the Staff's Environmental
3 Review to provide members of the public with
4 information to assist them in formulating comments on
5 the draft EIS, and to respond to questions and accept
6 comments. The Staff developed responses to comments
7 received on the draft EIS and provided these responses
8 in Appendix E of the Final EIS. Next slide, please.

9 On April 27, 2012, the Staff published the
10 Final EIS as NUREG-1941. As stated in the Final EIS,
11 the Staff's recommendation related to the
12 environmental aspects of the proposed action is that
13 the COL should be issued. The Staff based its
14 recommendation on (1) the Levy COL application
15 Environmental Report, (2) consultation with federal,
16 state, tribal, and local agencies, (3) the Staff's own
17 independent review, (4) the Staff's consideration of
18 comments that were received during the public scoping
19 process, (5) the Staff's consideration of comments on
20 the draft EIS, and (6) assessments summarized in the
21 EIS, including the potential mitigation measures
22 identified in the Environmental Report and in the EIS.
23 Next slide, please.

24 The Staff included a draft Summary Record
25 of Decision as a reference in the SECY. This document

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1 states the decision being made and identifies all
2 alternatives considered in reaching the decision. Next
3 slide, please.

4 The draft Summary Record of Decision also
5 discusses preferences among the alternatives and
6 states whether the Commission has taken all
7 practicable measures within its jurisdiction to avoid
8 or minimize environmental harm from the alternative
9 selected. Next slide, please.

10 This slide lists the environmental
11 findings pursuant to 10 CFR 51.107(a) that the
12 Commission must make to support the issuance of the
13 Levy Nuclear Plant Units 1 and 2 COLs. The Staff
14 believes that the scope of the Environmental Review,
15 the methods used to conduct the review, and the
16 conclusion reached in the EIS are sufficient to
17 support a positive determination regarding these
18 findings.

19 For the first finding, in accordance with
20 NEPA Section 102.2(a), the Staff's Environmental
21 Review used a systematic interdisciplinary approach to
22 integrate information from many fields, including the
23 natural and social sciences, as well as the
24 environmental sciences. The Staff's review also
25 comports with the NRC requirements in Subpart A of 10

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1 CFR Part 51. The Staff concludes that the
2 environmental findings in the EIS constitute the hard
3 look required by NEPA and have reasonable support in
4 logic and fact.

5 In accordance with NEPA Section 102.2(c),
6 the EIS for Levy COLs addresses (1) the environmental
7 impact of the proposed action, (2) any unavoidable
8 adverse environmental impacts, (3) alternatives to the
9 proposed action, (4) the relationship between local
10 short-term users of the environmental and the
11 maintenance and enhancement of long-term productivity,
12 and (5) any irreversible and irretrievable commitments
13 of resources that would be involved in the proposed
14 action should it be implemented.

15 As supported by the correspondence
16 presented in Appendix F of the EIS, the Staff
17 concludes that the requirement of NEPA Section
18 102.2(c) was fulfilled by consulting with and
19 obtaining comments from other federal agencies with
20 jurisdiction by law or special expertise. As noted
21 earlier, the U.S. Army Corps of Engineers fully
22 participated with the NRC as a cooperating agency in
23 preparing the EIS. The Staff did not identify any
24 other federal agencies as cooperating agencies in
25 preparing this EIS.

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1 In accordance with NEPA Section 102.2(e),
2 the Staff concludes that the EIS demonstrates that the
3 Staff adequately considered alternatives to the
4 proposed action. The alternatives considered in the
5 EIS include the no-action alternative, site
6 alternatives, energy alternatives, system design
7 alternatives, and mitigation alternatives for severe
8 accidents. Next slide, please.

9 For the second and third findings which
10 appear on this slide and the next, Chapter 10 of the
11 EIS provides the Staff's Cost Benefit Assessment which
12 considered conflicting factors such as the need for
13 power, as well as reasonable alternatives to the
14 proposed action. Next slide, please.

15 Based on that analysis, the Staff
16 concluded that the building and operation of the
17 proposed Levy Nuclear Plant Units 1 and 2 would have
18 accrued benefits that would be expected to outweigh
19 the economic, environmental, and social costs. As a
20 result, the Staff recommends that the COLs be issued.
21 Next slide, please.

22 For the fourth finding, the Staff believes
23 that the Commission will be able to find after this
24 hearing that the NEPA review performed by the Staff
25 has been adequate. The Staff performed a thorough and

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1 complete Environmental Review sufficient to meet the
2 requirements of NEPA and adequate to inform the
3 Commission's action on the request for COLs.

4 I will not turn over the presentation back
5 to Jennifer Uhle.

6 MS. UHLE: Thanks, Sam.

7 So in our Overview Panel we provided just
8 that, a brief overview of the Staff's review. In
9 subsequent panels, the Staff will be presenting
10 information on the issues listed on this slide. The
11 Safety and Environmental Panels will discuss unique
12 facility features and novel issues that arose as part
13 of the Staff's review process. Specifically, the
14 Safety Panel will cover three topics; the first is
15 Geologic and Geotechnical Site Characteristics, the
16 second is the Roller Compacted Concrete Foundation
17 Design, and lastly, the Condensate Return Design
18 Change discussed earlier. The Environmental Panel will
19 discuss the U.S. Fish and Wildlife Service biological
20 opinion and the evaluation of alternative sites.

21 So this concludes the Staff's opening
22 remarks and we are prepared to respond to any
23 questions you may have. Thank you.

24 CHAIRMAN BURNS: We'll begin this round of
25 questions from Commissioner Svinicki.

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1 COMMISSIONER SVINICKI: Thank you,
2 Jennifer, Frank, and Sam, and all of the NRC Staff
3 whose work supported the overview that you just gave.
4 I want to thank you for your input and for the
5 presentation.

6 Jennifer, you covered the number of hours
7 of review, and I appreciate your doing that. I would
8 have asked you to do it if you hadn't because of a
9 concern I sometimes express at these hearings, that
10 given the visibility of today's mandatory hearing,
11 some members of the public may tune in and go is that
12 all there is? And there is so much more. There have,
13 again, been tens of thousands of hours of review and
14 analysis that have gone into today's hearing and will
15 ultimately support the findings that the Commission
16 needs to make in order to approve issuance of the
17 licenses.

18 I have a couple of other topics, one of
19 which Frank touched on. I do always for these
20 mandatory hearings look closely at the back and forth
21 with the Advisory Committee on Reactor Safeguards who,
22 of course, participates in monitoring and looking at
23 the sufficiency of the review as a matter of law given
24 their role under the Atomic Energy Act.

25 Frank, you talked about the issues that

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1 they raised, the Staff response. I looked carefully at
2 that record in preparation for today's hearing and I
3 might just ask a point of clarification, on the issue
4 of the tsunami hazard, I looked at the identification
5 of that in the initial letter, the Staff's response,
6 and even some further follow-up that the Commission
7 asked in pre-hearing questions on this matter.

8 I confess to being a little bit puzzled.
9 I, based on the Staff's response that the ACRS return
10 to the issue again in their letter responding to the
11 Staff's response, I interpreted it a bit as the ACRS'
12 tendency to desire risk assessments, specifically PRA
13 in some cases, that they find desirable to augment the
14 record but which in some cases is simply in excess of
15 that needed by the Staff in order to support the
16 adequate protection conclusions that Jennifer outlined
17 when she began the Overview Panel.

18 There is, of course, a difference between
19 just a desire to augment the record and that which is
20 required. Does the Staff consider this issue -- again,
21 I found the Staff's response -- I'm not as expert as
22 the Staff in these matters, but just as a technical
23 person without specific expertise in this hazard, the
24 Staff's response to the ACRS struck me, and then other
25 materials in the record struck me as beyond sufficient

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1 to address this matter. Does the Staff consider this
2 matter sufficiently addressed?

3 MR. AKSTULEWICZ: I'm no tsunami expert
4 either. I think the record would indicate that the
5 Staff believes this issue to be retired, and has
6 addressed the concerns by the Committee both in its
7 conversations with the Committee and in the written
8 documentation provided. If there's additional
9 questions here, I'd have to defer to the Staff
10 expertise in this area, and we could call them up, if
11 necessary.

12 COMMISSIONER SVINICKI: And that answer is
13 sufficient for the question. I was just trying to
14 understand whether there were any kind of remaining
15 issues.

16 The other issue that was in the ACRS
17 letter that you mentioned, Frank, was a kind of
18 generally articulated concern about Lessons Learned
19 and QA, which again I interpreted as venturing maybe
20 more into a kind of a management realm. But in any
21 event, I didn't interpret that as having specific
22 nexus to the Levy review or the Staff's conclusions.
23 Do you agree with my assessment?

24 MR. AKSTULEWICZ: That's correct. The
25 Committee was raising a general concern about how

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1 design changes are handled as part of the post-
2 certification process, and what is the oversight of
3 those activities both by the vendor itself, and by the
4 utilities, the licensees, applicants, whatever form
5 they take. So it was more that construct that they
6 were concerned about rather than a unique issue
7 associated with Levy.

8 COMMISSIONER SVINICKI: And that was
9 migrated over to some other engagement between the
10 Staff and the ACRS. Is that correct?

11 MR. AKSTULEWICZ: Yes, that's correct.

12 COMMISSIONER SVINICKI: Okay, thank you for
13 that.

14 The other topic is more general. This is
15 not my first AP1000, and neither is it the Staff's.
16 Does the -- the certification and the issue finality
17 afforded to the AP1000 under its design certification,
18 as you have moved through now a number of COL
19 applications referencing the -- even subsequent
20 applications referencing the AP1000, we have units of
21 the AP1000 under construction in the U.S., and more
22 advanced construction levels in China, and we have a
23 lot of technical engagement with the Chinese
24 regulator. Do those activities have a kind of a
25 feedback loop into the Staff's review of something

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1 like the Levy COL or other COLs referencing AP1000
2 that you have ongoing? And if so, in what way?

3 MS. UHLE: Yes, there is a feedback loop.
4 Well, first of all, if there were to be an error
5 identified, although the design certification
6 provides, you know, an appropriate issue finality, if
7 an error is identified that is necessary for
8 compliance then it must be addressed, and that
9 overrides the finality. Certainly, the AP1000 design
10 center has benefitted by the construction in Sanmen,
11 as well as the construction in the United States. The
12 design when it's approved at the certification stage
13 is only partially completed. It's necessarily complete
14 for the safety finding, but then there's a great deal
15 of design work that goes from taking a certification
16 design level to the constructability design; in other
17 words, blueprints, if you will. So as issues are
18 identified overseas, say in China, as well as the
19 construction sites then, of course, we are aware of
20 those. They are shared with the AP1000 Owners Group,
21 and they are addressed appropriately.

22 COMMISSIONER SVINICKI: Thank you. Thank
23 you, Mr. Chairman.

24 CHAIRMAN BURNS: Thank you. Commissioner
25 Baran.

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1 COMMISSIONER BARAN: Thanks. I just keep
2 going right from that point.

3 As Duke explained on the first panel, and
4 Frank also talked about, five of the departures in the
5 Levy application are pretty significant modifications
6 that essentially represent generic changes to the
7 AP1000 design.

8 Frank, you talked a little bit about this,
9 but if the Commission approves these departures and
10 the related exemptions for Levy, how would that affect
11 other AP1000 applicants or applications, lee Turkey
12 Point or any future AP1000 application?

13 MS. UHLE: Well, for one thing, the -- all
14 of the subsequent COLs will be following through with
15 appropriate design changes. In addition, the Vogtle
16 and Summer licensees are also committed to address the
17 issues, as well.

18 Frank, if you want to add anything?

19 MR. AKSTULEWICZ: Yes, Commissioner. I
20 think -- you heard Mr. Kitchen mention that all of the
21 design modifications are reviewed as part of their
22 ongoing interactions with the utilities, so before a
23 design change actually arrives at the NRC for its
24 evaluation there is alignment within the AP1000
25 community that these are the changes that will be

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1 implemented across the board at all of the licensees
2 referencing the AP1000, so there is that alignment
3 going in.

4 But more importantly, I think Jennifer got
5 it right, that Vogtle -- I'm sorry, the Lee Station
6 and the Turkey Point applications will have these in
7 them already. The applications are already submitted
8 that reference these particular changes and are
9 requesting these same exemptions.

10 The Vogtle and Summer licensees are
11 staging their submittals a little bit based on their
12 construction need dates, so while we don't have all of
13 the amendments in house for these five actions at the
14 moment, there is the commitment that these licensees
15 will follow through with the same modifications that
16 we're discussing here.

17 COMMISSIONER BARAN: So it's effectively a
18 standardized response to these issues for all
19 applications.

20 MR. AKSTULEWICZ: That's correct. That's
21 the design-centered review approach, as Mr. Kitchen
22 said. One issue, one solution, one fix.

23 COMMISSIONER BARAN: Thank you.

24 CHAIRMAN BURNS: Thanks. One of the things
25 that the Staff and Applicant have followed is Staff

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1 Guidance in ISG-11 called "Finalizing Design Basis, or
2 Licensing Basis Information," to determine which
3 changes in AP1000 have to be factored into the Levy
4 design before issuance of license. As a result of this
5 review or other work the Staff has done, has the Staff
6 identified any Lessons Learned or potential changes to
7 that guidance document, ISG-11?

8 MS. UHLE: I would say certainly the Lesson
9 Learned is to insure that when there are small changes
10 that are made that we do appropriate communication
11 across the Staff to insure that no other technical
12 area is affected, so that's certainly a Lesson
13 Learned. At this point, we don't see that ISG, or
14 Interim Staff Guidance 11, requires any changes.
15 Frank?

16 MR. AKSTULEWICZ: I agree with Jennifer.
17 The ISG itself doesn't suggest the need for change.
18 What I would offer is that what we've -- what I recall
19 from the first opportunity here when we were licensing
20 Vogtle, that the conversation went well, when we do
21 our finalized design we're going to find areas where
22 we're going to change because construction is going to
23 identify those. All I would offer is this is the proof
24 positive that that actually is the case, that when we
25 certify a design we don't have the complete set of

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1 details, we don't have the complete set of procurement
2 specs, we don't have everything that you would need to
3 actually construct a design. And when you start
4 looking at that, then you identify areas potentially
5 where some modification occurs.

6 CHAIRMAN BURNS: If issued, the Levy COLs,
7 we have the fifth and sixth COLs in the AP1000 Design
8 Center, eighth and ninth overall when you factor in
9 Fermi and South Texas. Is it -- could you discuss how
10 the format and content of the licenses evolved since
11 the last time an AP1000 license was issued, which was
12 Summer? Because based on a very cursory look at sort
13 of format, layout of some of the license seems
14 reordered and reorganized and trying to understand the
15 rationale, or what's changed?

16 MR. AKSTULEWICZ: Well, personally I'm not
17 that tied into how much changes in format there are.
18 I didn't expect any to be significant, but I think
19 you've seen changes as we've evolved with respect to
20 the Fukushima license conditions, orders translating
21 to license conditions. You've seen the evolution of
22 other requirements that we've learned from the
23 licensing activities that are ongoing at Vogtle and
24 Summer, and I know there's another license condition
25 associated with the potential limits on radioactivity

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1 in the Rad Waste Building. That's a unique license
2 condition, that is a difference. But those are kind of
3 Lessons Learned. The overall structure I still think
4 is pretty much the same, though, with the structure
5 for the ITAAC and the structure outlining the
6 conditions and stuff like that.

7 CHAIRMAN BURNS: One last question I have
8 in this area. We noted during the Staff's overview
9 that the Environmental Impact Statement was issued in
10 2012, four years ago. My question relates to while
11 obviously we developed such a --you know, the product
12 just like a Staff's SER and the EIS after the
13 appropriate consultations, comment period, you've got
14 it coming out in a fixed period. You come out -- and
15 when I say fixed period, you fix an issue with the
16 document. My question would be just as a general
17 matter, since the issuance of the EIS, has there been
18 any particular engagements, formal or informal, with
19 other agencies that might have been consulted, or how
20 does the Staff maintain awareness of potential
21 developments that might affect the EIS, recognizing
22 that not every small change means something, or is
23 meaningful with respect to the conclusions of the EIS,
24 but that there -- whether you need to maintain
25 awareness of that?

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1 MR. LEE: So after the issuance of the
2 Final EIS, the Staff is engaged in monitoring any new
3 information that may come forward as new and
4 potentially significant information, and so since the
5 issuance of the FEIS, we have received a number of new
6 information that the Staff analyzed to see if they
7 were of significance. And as part of the end game or
8 the completion of the preparation for the SECY paper,
9 as well as other supporting documents, one of the
10 deliverables is a memorandum that concludes the
11 Staff's analysis of new and potentially significant
12 information, and we have not identified any
13 significant information to date on that.

14 MR. AKSTULEWICZ: Yes, just to supplement
15 Sam's -- I believe the record would show that there
16 were 20 issues that were evaluated by the Staff as
17 being new for the potential significance that could
18 lead to supplementation of the EIS.

19 CHAIRMAN BURNS: Okay, thank you. I have no
20 other questions at this time.

21 With that, we'll conclude the Overview
22 Panel. We're going to take a brief break. Let's re-
23 gather at 10 to 11:00, and we'll proceed with the
24 Safety Panel, and we'll go from there. Thanks. We're
25 adjourned for 10 minutes.

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1 (Whereupon, the above-entitled matter went
2 off the record at 10:42 a.m. and resumed at 10:53
3 a.m.)

4 CHAIRMAN BURNS: I'm going to ask everyone
5 to take their seats again so we can proceed with our
6 second panel, or our second portion I should say. We
7 have two panels in the second portion of the hearing
8 to cover safety matters. The parties will address
9 relevant sections of the application and three
10 chapters in particular from the final safety
11 evaluation report, chapter 2 on site characteristics,
12 chapter 3 on design of structures, components,
13 equipment and systems, and chapter 21, design changes.

14 I'll remind everyone that the witnesses
15 are under oath and that again they should presume that
16 the Commission is familiar with their prehearing
17 filings.

18 For this portion, again to explain how
19 we'll proceed, we'll have the Applicant provide its
20 testimony and then the staff. We'll ask the staff to
21 come up to provide its testimony. And then we'll have
22 a question and answer session for the Commissioners
23 based on the testimony or other matters they may wish
24 to raise regarding the safety aspects of the
25 application.

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1 So again, I'll ask the Applicant's
2 witnesses to introduce themselves and then you may
3 proceed.

4 MR. SINGH: My name is A.K. --

5 CHAIRMAN BURNS: Pull the microphone
6 toward you. Thank you.

7 MR. SINGH: A.K. Singh. I work for
8 Sargent & Lundy.

9 MR. THRASHER: John Thrasher, Director of
10 Engineering, Nuclear Development, Duke Energy.

11 MR. KITCHEN: Bob Kitchen, Director of
12 Licensing, Duke.

13 MR. TAYLOR: Lawrence Taylor, Lead of
14 Procedure and Program Development within Nuclear
15 Development.

16 CHAIRMAN BURNS: Okay. You may proceed.

17 MR. KITCHEN: Thank you, Commissioner.
18 John Thrasher and I are going to present. First
19 John's going to talk about the foundation design at
20 Levy and some of the unique features there and then
21 I'll talk about the condensate return design change.

22 John?

23 MR. THRASHER: Good morning, Mr. Chairman
24 and Commissioners.

25 Next slide, please. A large number of

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1 borings were performed to fully characterize and
2 understand the Levy site and address potential karst.
3 Karst is defined as sinkholes or depressions formed
4 due to solution activity in limestone. Limestone
5 formation at the Levy site, the Avon Park Formation,
6 has a low potential for karst.

7 Initial site investigations postulated
8 karst features the majority of which were less than
9 one foot in width while the largest was conservatively
10 postulated to be approximately five feet in width.
11 Additional detailed investigations determined that
12 these potential karst features were not voids, but
13 actually small pockets of weathered rock in the
14 limestone, however the roller-compacted concrete RCC
15 bridging mat is conservatively designed for a 10-foot
16 wide karst feature.

17 Next slide, please. The Levy Nuclear
18 Island foundation design is very robust as shown in
19 this slide. First ptolemaic groundwater intrusion
20 into the excavation diaphragm walls and grouting will
21 be installed to form somewhat a bathtub as a
22 construction aid. Diaphragm walls will be installed
23 from the surface around the perimeter of the nuclear
24 island to form the sides of the bathtub and a 75-foot-
25 thick grouted zone will form the bottom of the bathtub

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1 at the bottom of the excavation. After placement of
2 the diaphragm walls and grouted zone the interior of
3 the bathtub will be excavated and the excavation will
4 be mapped.

5 The 35-foot-thick RCC bridging mat will
6 then be placed in one-foot-thick compacted lifts.
7 Roller- compacted concrete has been used in
8 construction in many dams as an acceptable method of
9 placing large amounts of concrete to form a robust
10 structure. A waterproof membrane will then be
11 installed prior to pouring the six-foot-thick
12 reinforced concrete base mat of the AP1000 standard
13 plant nuclear island.

14 Next slide, please. Two ITAAC ensure that
15 the RCC bridging mat and the waterproof membrane
16 conform to design parameters as described in the Final
17 Safety Analysis Report. Two license conditions
18 requires Duke Energy to perform geologic mapping of
19 excavations for safety-related structures and to also
20 submit a test report verifying RCC strength and
21 constructability prior to placing the roller-compacted
22 bridging mat.

23 Bob Kitchen will now present information
24 on condensate return.

25 MR. KITCHEN: Next slide, please. This

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1 slide shows a cross-section of the AP1000 containment
2 design on the right. The concern with condensate
3 return arose related to the closed-loop operation of
4 passive residual heat removal operation. That heat
5 exchanger uses the in-containment refueling water
6 storage tank as the heat sink. That's shown on the
7 drawing on the lower left and is labeled IRWST.

8 Basically the heat sink being the IRWST
9 eventually boils and steam is released to the
10 containment environment. That steam condenses on the
11 containment walls and runs back down. You can see the
12 larger red arrows that illustrate that. So that
13 condensate is then returned to the IRWST, or in-
14 containment refueling water storage tank, to maintain
15 the heat removal capability of that heat exchanger.

16 The condensate return that was assumed was
17 about 90 percent for the design certification of
18 AP1000. Subsequent testing done by Westinghouse
19 involving full-scale mockups, etcetera, indicated that
20 return rate was much lower in fact to the point that
21 the performance was affected for closed-loop
22 operation. So that's what drove the design.

23 The design change really involved
24 essentially a catchment system, gutters and piping
25 downspouts to return more condensate particularly from

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1 around the polar crane grid and the internal stiffener
2 of the containment liner back to the IRWST. That was
3 the change in substance that was made.

4 Next slide. The passive RHR, passive
5 residual heat removal performance was demonstrated
6 using a safety design-basis accident analysis to meet
7 72 hours performance requirements to satisfy GDC 34
8 for safe protection of the fuel in a reactor coolant
9 system.

10 In addition, we did a long-term analysis
11 using more realistic conditions; we refer to it as
12 conservative non-bounding, to demonstrate that we
13 could achieve a specific temperate of 420 degrees in
14 36 hours and maintain that for at least 14 days.
15 Previously had indicated that that would be an
16 indefinite operation. So that is a change. The 420
17 in 36 is not a change.

18 Basically the other thing to mention is
19 that from a safety function standpoint the system has
20 the capability to shift to open-loop where you
21 depressurize and then you're on recirculation through
22 containment.

23 So those are the criteria that we
24 demonstrated following the design change. That
25 concludes your presentation on these two issues.

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1 CHAIRMAN BURNS: Okay. Thank you, Mr.
2 Kitchen and Mr. Thrasher.

3 I'll ask the staff then to come up. Okay.
4 And again, I'll ask you to identify yourselves for the
5 record and I remind everyone you're still under oath
6 and can assume that the Commission is familiar with
7 your prehearing filings.

8 I'll start with you, Mr. Travis.

9 MR. TRAVIS: Boyce Travis, a member of the
10 Containment Ventilation Branch in NRO.

11 MR. THOMAS: Vaughn Thomas, structural
12 engineer in the Office of New Reactors.

13 DR. STIREWALT: I'm Gerry Stirewalt,
14 Senior Geologist, NRO.

15 MR. HABIB: Don Habib, Project Manager,
16 Division of New Reactor Licensing.

17 CHAIRMAN BURNS: Okay. Thank you and I'll
18 let you proceed.

19 MR. HABIB: Good morning, Chairman Burns
20 and Commissioners. Again my name is Don Habib. I'm
21 lead project manager for the staff review of the Levy
22 Nuclear Plant, Units 1 and 2 combined license
23 application.

24 Next slide, please. And joining me on the
25 panel are Dr. Gerry Stirewalt, Mr. Vaughn Thomas, Mr.

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1 Boyce Travis.

2 Next slide. The staff presentation for
3 this panel will discuss three novel site-specific
4 issues from the safety review, and the three topics in
5 order are first the geologic and geotechnical
6 characteristics of the Levy site; second, the use of
7 roller-compacted concrete below the foundation; and
8 third, departures from the AP1000 certified design
9 relating to the design change to the condensate return
10 portion of the passive heat removal system.

11 And I'll now turn it over the presentation
12 to Gerry Stirewalt who will address the topic of the
13 geologic and geotechnical characteristics.

14 DR. STIREWALT: Thank you, Don. I'm still
15 Gerry Stirewalt. I'd like to roll -- take the next
16 slide and quickly roll directly into the issue that
17 relates to site characteristics.

18 The Applicant identified the potential for
19 subsurface voids created by dissolution of the
20 limestone in the Avon Park Formation, which is the
21 foundation unit, as the primary geologic hazard at the
22 site.

23 In the next slide you'll note that the
24 Applicant determined that these dissolution voids were
25 less than five feet in vertical dimension, and that

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1 number is actually based on measured lengths of rod
2 drops in bore holes.

3 Let me quickly explain that. Just the
4 weight of the drill stem itself passing through hard
5 rock, if you hit a cavity, it drops until it hits the
6 bottom. So it's a standard method and that's exactly
7 how it's done.

8 And the maximum horizontal dimension of
9 5.3 feet was actually based on measured grout uptakes,
10 again measured during the grout testing.

11 In the next slide you'll note that the
12 staff confirmed the Applicant's characterization of
13 the voids by a number of methods, certainly by
14 examination of rather sparse outcrops; it's Florida,
15 after all, bore hole lithologic and geophysical log,
16 drop core and grout uptake testing. And all of those
17 things were done during site audits. So those are
18 field observations. And also review of select
19 publications you sited in the FSAR.

20 Well, I am a geologist, so I have to take
21 you into the field. So into the next slide I'd like
22 you walk you to an outcrop of the Avon Park and I want
23 to point out a couple of features in this slide.

24 You'll note one feature that's labeled as
25 a horizontal bedding plane. That's just a function of

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1 the deep positional history of the unit. You'll also
2 see vertical fractures that cross-cut that. And if
3 you look at that in three dimensions, you think about
4 the horizontal plane and the vertical plane. That in
5 fact forms the plus sign geometry that the Applicant
6 described as most likely being a rather good control
7 on subsurface dissolution and void development.

8 In the next slide let me walk you quickly
9 and show you some core. The upper right image shows
10 a small disconnected dissolution void. Now what does
11 that mean? Well, in the first place they're small,
12 certainly less than foot in diameter in this sample of
13 core. And the fact that they are disconnected is
14 important because that indicates that it's not going
15 to pass fluid, groundwater readily through this unit.
16 And the lower slide shows what used to be a vertical
17 fracture. It in fact was sealed by grouting during
18 the grout testing.

19 So let me talk in the next slide then sort
20 of about our overall conclusions. Certainly based on
21 the sorts of things you just saw in that field visit
22 field data do support the maximum dimensions of the
23 dissolution voids in the foundation unit and the
24 interpretation that those voids are not more than one
25 foot in diameter. And also subsurface voids will not

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1 detrimentally affect the stability or the suitability
2 of the Avon Park.

3 And in the final slide I want to just
4 touch on the idea for grouting. The grouting is done
5 strictly for groundwater control just during
6 construction. And let me reiterate it's not safety-
7 related, it's not credited in the evaluation of safety
8 for the life of the plant. So this is strictly for
9 groundwater control during construction and
10 fortuitously perhaps it will likely seal or at least
11 reduce the size of dissolution voids within the
12 safety-related structures and restrict the flow of
13 groundwater into the foundation excavations. And you
14 saw an illustration of that in a previous slide.

15 That concludes my discussion of the site
16 characteristics. I'll be pleased to pass the talking
17 baton to Mr. Vaughn Thomas.

18 MR. THOMAS: Okay. Thanks. Next slide,
19 please.

20 Good morning. And once again my name is
21 Vaughn Thomas and I'm a structural engineer in the
22 Office of New Reactors. I'm here to present to you
23 the staff's review of the design and construction of
24 the roller-compacted concrete bridging mat for the
25 Levy application.

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1 It was a novel issue in the staff review
2 because neither the AP1000 DCD nor the American
3 Concrete Institute ACI 349 addresses the requirements
4 for un-reinforced concrete. Moreover, this foundation
5 design concept was not utilized for the combined
6 license applications.

7 This figures shows a cross-section of the
8 nuclear island foundation which includes the RCC
9 bridging mat that will be used to transmit the nuclear
10 island design loads. The RCC bridging mat would be
11 designed as a structure that is capable of supporting
12 the nuclear island loads.

13 The purpose of the RCC bridging mat is to
14 replace the weakly submitted soil and to bridge
15 conservatively postulated voids between the nuclear
16 island, base mat and the grouted portion of the Avon
17 Park Formation. The RCC bridging mat will be
18 constructed of un-reinforced concrete. It will be
19 approximately 35 feet thick and will be built on top
20 of a 75-feet-deep grouted Avon Park Formation. A
21 waterproofing membrane will be placed between the RCC
22 bridging mat and a six-inch-thick concrete mud mat
23 which is consistent with the commitments in the AP1000
24 DCD.

25 Next slide, please. The RCC bridging mat

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1 will be designed using industry codes and standard
2 methods that have been successfully implemented on
3 large commercial RCC projects such as the Saluda Dam
4 in South Carolina.

5 The Applicant committed in the FSAR to
6 using RCC construction standard guidance in the
7 "United States Army Corps of Engineers Engineering
8 Manual." For the conceptual design phase of the RCC
9 the Applicant committed to using ACI 349, Load and
10 Strength Reduction Factors, ACI 318, Equations for
11 Computing Tensile Strength and Modulus of Elasticity
12 of Structural Un-reinforced Concrete, and the Army
13 Corps of Engineers Engineering Guidance.

14 Next slide, please. Additionally, the
15 Applicant performed analysis of the bridging mat to
16 confirm that the capacity versus loading demands are
17 adequate. The Applicant also demonstrated that the
18 stresses in the RCC bridging mat will remain within
19 code allowable limits and that is therefore assured of
20 performing its intended function.

21 Next slide, please. For the construction
22 of the RCC bridging mat the Applicant committed to
23 using mixing, placement and compaction equipment
24 consistent the "Army Corps of Engineers Engineering
25 Manual" and equipment comparable to that used in large

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1 successful commercial projects. The Applicant also
2 committed to following the codes and the industry
3 standards such as ACI 318 and ACI 349. This provides
4 assurance that the RCC bridging mat will be
5 successfully constructed and would have the desired
6 strength. The Applicant included a detailed test plan
7 that describes the quality control and inspection that
8 is expected to occur during construction of the RCC
9 bridging mat.

10 Implementation of the test plan will
11 ensure that the mixing, placement and compaction of
12 the concrete comply with construction specification.
13 At the site the pre and post-RCC testing will verify
14 that the specified compressive strength, tensile
15 strength and shear strength across the lift joints are
16 achievable. Furthermore, the Applicant's RCC test
17 result from the commercial RCC projects confirm that
18 the use of the design values from ACI 318 and the Army
19 Corps of Engineers Engineering Manual are appropriate.

20 Next slide, please. The post-COL RCC
21 imbedding mixed testing will be performed in a large
22 test bed at the site prior to production of the RCC
23 bridging mat. The Applicant proposed a license
24 condition for post-CUL testing which states that the
25 licensee will complete 180 days prior to construction,

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1 then a 90-day test report for the strength
2 verification and constructability testing in
3 accordance with the criteria outlined in the FSAR.
4 The Applicant also proposed an ITAAC to ensure that
5 the production RCC bridging mat placement and
6 constituents are consistent with the design
7 requirements resulting from the testing program.

8 Staff concludes that the information
9 provided by the Applicant including the proposed
10 license condition and ITAAC demonstrate that RCC
11 bridge mat is capable of transferring NI loads while
12 providing the desired level of performance.

13 And this concludes my presentation. Thank
14 you. And the next presenter is Mr. Travis.

15 MR. TRAVIS: Thank you, Vaughn. I'm Boyce
16 Travis and I'll be addressing the condensate return
17 design change.

18 Next slide, please. The condensate return
19 departure is one departure for the Levy design. It's
20 described in further detail here as an example the
21 departures and exemptions evaluated by the staff for
22 the Levy Nuclear Plant.

23 For the AP1000 the safety-related system
24 designed to remove decay heat following a non-loss of
25 coolant accident such as a loss of AC power is the

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1 passive residual heat removal heat exchanger, or PRHR.
2 The heat exchanger is submerged in the in-containment
3 refueling water storage tank, or IRWST. Upon receipt
4 of a signal valves open and natural circulation drives
5 coolant from the reactor coolant system hotleg through
6 the heat exchanger where it cools down and then
7 returns to the steam generator exit plenum back to the
8 cold leg.

9 Eventually the water in the IRWST boils
10 and steams to containment. Some of the steam is held
11 up in containment. Most of the remaining steam
12 reaches the containment shell where it condenses and
13 returns to the IRWST through a gutter system. In
14 order to continue operating in this mode the passive
15 core cooling system must achieve a sufficient
16 condensate return rate such that the water level in
17 the IRWST is maintained so that the PRHR heat
18 exchanger can continue to remove decay heat.

19 Next slide, please. The Applicant
20 discovered that the existing design was incapable of
21 meeting the previously assumed condensate return rate.
22 As such, design changes were necessary. Because of
23 the uniqueness of the system and its importance in the
24 passive design of the AP1000, significant testing and
25 analysis was required to determine the efficacy of the

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1 condensate return rate on the performance of the PRHR
2 heat exchanger.

3 The design changes involve adding
4 additional guttering for routing and collection as
5 well as improvements to the existing gutter design so
6 that less condensate is lost. The change also
7 includes a departure from the AP1000 certified design
8 for the operational duration of the passive core
9 cooling system from indefinite to greater than 14
10 days.

11 Next slide, please. The staff's review
12 focused on the capability of the design to meet the
13 requirements associated with GDC 34, Residual Heat
14 Removal. Staff reviewed the analytical models used to
15 produce the reactor coolant system and containment
16 response, the testing that determined the calculated
17 loss rates along the containment shell and the
18 associated design data.

19 The Applicant performed testing for losses
20 over attachments to the containment shell. The loss
21 values obtained informed the containment calculation
22 for condensate return. This calculation interfaces
23 with the reactor coolant system model to determine
24 coolant behavior and the PRHR heat exchanger system
25 performance. The staff performed independent

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1 confirmatory analyses and arrived at values similar to
2 those determined in the Applicant's analysis
3 supporting the staff's finding.

4 In the certified AP1000 design the PRHR is
5 specified to sustain indefinite operation for a non-
6 LOCA event. In looking at the detailed analysis for
7 this design change the Applicant determined this was
8 not the case, and so the revised Levy FSAR replaced
9 indefinite with a 72-hour safety-related period of
10 operation and a 14-day design requirement. The 72-
11 hour operational period is consistent with the NRC's
12 position for compliance with GDCs 34 and 44.
13 Ultimately, the plant retains the ability to
14 transition to open-loop cooling by using the automatic
15 depressurization system at any time.

16 Next slide, please. As a result of the
17 review the staff found the modified design meets the
18 decay heat removal requirements associated with GDC
19 34. Staff ensured that the existing containment and
20 transient safety analyses were not impacted by the
21 design changes.

22 For the design-basis accident analyses
23 specifically staff requested that the Applicant
24 perform additional calculations demonstrating the
25 system performance for greater than 72 hours as

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1 compared to the shorter durations demonstrated in the
2 certified design. These calculations showed system
3 performance is not challenged using design-basis
4 assumptions. Staff performed confirmatory analysis to
5 verify this determination.

6 Consistent with the certified AP1000
7 design and the NRC's position as expressed in SECY
8 494-084, titled, "Policy and Technical Issues
9 Associated with the Regulatory Treatment of Non-Safety
10 Systems in Passive Plant Designs," the plant is
11 capable of achieving a safe shutdown condition of 420
12 degrees Fahrenheit in 36 hours following a non-LOCA
13 event using on the PRHR heat exchanger. Analysis
14 supporting this design condition is laid out in the
15 shutdown temperature evaluation in chapter 19(e) of
16 the FSAR. Staff performed confirmatory analyses that
17 supported these analysis conclusions.

18 This review involved numerous public
19 meetings, ACRS briefings and requests for additional
20 information. The Applicant addressed all the staff's
21 safety questions and adequately captured the necessary
22 changes in the FSAR. The staff determined the
23 departures associated with the condensate return
24 system met the applicable regulations and were
25 acceptable.

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1 This concludes the staff's presentations
2 to the Safety Panel and we'd be happy to address any
3 questions at this time.

4 CHAIRMAN BURNS: All right. Thank you
5 very much. What I might ask the staff witness to do
6 is maybe move a little aside so we have a clear view
7 or, or as clear a view as we can of the Applicant
8 witnesses. That's great. You're doing a great job
9 there.

10 And we'll start off this round of
11 questions with Commissioner Baran.

12 MEMBER BARAN: Thanks. Boyce, can I
13 follow up on the condensate return departures? As you
14 discussed and Mr. Kitchen discussed, the departures
15 changed the length of time during which the reactor
16 could passively remove decay heat from an indefinite
17 period of time to a finite period. Does the staff
18 believe there is still additional margin with respect
19 to the rate of condensate return and overall decay
20 heat removal capability?

21 MR. TRAVIS: So, I think I'll answer that
22 question in two parts. There is additional margin
23 purely with respect to the condensate return
24 capability. The staff performed confirmatory analyses
25 at lower condensate return rates that indicates the

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1 system was capable of performing at a return rate of
2 less than -- so I think the numbers may be proprietary
3 in terms of the return rate itself, but the system is
4 capable of performing at a return rate somewhat lower
5 than what is assumed in the analyses. The analyses
6 itself includes either a 0.7 or 0.9 percent margin of
7 losses that are just captured purely as margin, not as
8 a physical loss rate.

9 And in addition, the system as a whole is
10 still capable of indefinite performance if you go to
11 open-loop cooling. By utilizing the automatic
12 depressurization system you can -- the AP1000 is
13 capable of containment recirculation cooling, and that
14 is still indefinite, only limited by the -- nominally
15 by containment leakage.

16 MEMBER BARAN: And, Duke, do you have
17 anything you wanted to add to that, or you can leave
18 it there if you want to.

19 DR. STIREWALT: No, I think Boyce covered
20 the margin question very well.

21 MEMBER BARAN: Okay. So you're confident
22 there's still margin?

23 MR. TRAVIS: Yes, that's correct.

24 MEMBER BARAN: Okay. Let me ask, I want
25 to follow up on prehearing questions 30 and 31,

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1 departure from main control heat load.

2 Both the Applicant and the staff responses
3 state that the main control room area radiation
4 monitor used to declare emergency action level AA3 in
5 this case would be de-energized on either a high
6 radiation signal for the control room air supply or a
7 loss of all AC power for greater than 10 minutes.

8 So let me ask the staff with this design
9 change will control room operators be required to use
10 field instruments to monitor control room radiation
11 levels following a loss of off-site power for greater
12 than 10 minutes?

13 MR. TRAVIS: I'm going to have to defer
14 that to a staff expert.

15 CHAIRMAN BURNS: Again, state your name
16 and your position and please confirm whether you've
17 been sworn in.

18 MR. LaVERA: My name is Ron LaVera. I'm
19 a health physicist in the Office of New Reactors and
20 I have been sworn in.

21 CHAIRMAN BURNS: Okay. Please proceed.

22 MR. LaVERA: Yes, the question was asked
23 in the context of 10 CFR 20.1501 for monitoring
24 workers. And, yes, those rad monitors do de-energize
25 during the course of the event for a loss of power

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1 greater than 10 minutes. The Applicants stated that
2 they would be using battery-powered instruments to
3 monitor the conditions in the control room. Because
4 that meets the requirements of 10 CFR 20.1501, that's
5 an acceptable response and the provisions of those
6 monitoring instruments will be made in accordance with
7 the emergency plan requirements.

8 MEMBER BARAN: In terms of the operation
9 of those devices does this create any concerns about
10 operator burden during an emergency?

11 MR. LaVERA: There was no statement as to
12 whether the operators would have to do that
13 themselves, whether the instruments would be staged in
14 the control room or site health physicist personnel
15 would be called to the control room to do that. We
16 did ask about the power availability if they needed to
17 do an instrument plug-in into the control room. They
18 did say that there would be there and that they would
19 cover that in the emergency plan.

20 MEMBER BARAN: And is this something that
21 -- is this unusual, this approach? Has this been used
22 in other emergency plans?

23 MR. LaVERA: I don't have the expertise to
24 answer that question.

25 CHAIRMAN BURNS: State your name and

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1 position and confirm that you've been sworn in.

2 MR. BARSS: Dan Barss, team leader in the
3 Office of Nuclear Security and Incident Response, and
4 I have been sworn in.

5 To your question about will this create
6 additional burden first, one of the things which we
7 now require, and it's I believe a license condition to
8 this Applicant, is that they need to do an analysis of
9 the on-shift staff that they do have and what
10 potentially could happen and do they have enough staff
11 to fill all those positions to perform all those
12 functions? They use an NEI guidance, NEI-1005 I
13 believe is the number of that guidance document. And
14 that's an analysis that they actually do later. And
15 it's not down now because you need the thing built,
16 you need the staff trained to kind of do the walk-
17 throughs to see if you can prove that.

18 But to the question of the additional
19 burden, that's part of the reason of doing that
20 analysis is to look to see can they do all the things
21 that they're expecting their staff to do in an
22 emergency. And they would be able to identify then if
23 there is a problem or if there is not a problem and
24 then appropriately adjust their staffing. At this
25 point in time I don't believe that will cause a

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1 significant issue for them.

2 As to whether or not others use portable
3 instruments, it's not common to rely on them in a
4 control room, but certainly if you have a loss of
5 power, it's expected that you would have and that
6 you'd do that, that you would come in and do that. So
7 knowing that in this case that they would have that
8 condition develop, we expect that they have the
9 instruments available, have the people trained and
10 able to operate them and do that monitoring.

11 MEMBER BARAN: Okay. Thank you.

12 Thank you.

13 CHAIRMAN BURNS: Thank you. I want to
14 turn to the site geology for a couple minutes and draw
15 on your experience, Dr. Stirewalt.

16 I understand that I think as excavation
17 might proceed there is going to be some monitoring of
18 the excavation probably to assure that there's -- our
19 expectations about potentially detrimental geologic
20 features are confirmed. In other words, that we would
21 essentially have our assessment of the site -- it
22 doesn't -- the karst formation don't pose a challenge
23 in terms of the siting itself.

24 Perhaps you can describe for me as one
25 excavates what would be looking for, what would -- how

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1 that would proceed. And I'll let you answer and then
2 maybe the Applicant as well.

3 DR. STIREWALT: Yes, thank you for that
4 question. I get to talk about geology a little more.

5 (Laughter.)

6 DR. STIREWALT: The point that you bring
7 up is what do you look for to make the determination
8 that the site is still okay relative to properties of
9 the rock that the plant's going to sit on? Well, the
10 geologic mapping condition in fact is what we use to
11 ensure that the staff can go into the excavation, look
12 at the materials, look at the maps, do a direct
13 comparison.

14 And, for example, if we see areas that are
15 grouted extensively, then we realize, well, maybe
16 there was a few more fractures than we thought. These
17 have been filled. So that's the kind of observation
18 that you'd be -- things you'd be looking for in that
19 excavation and again comparing directly what we see in
20 the field, standing on the exposure with the map that
21 the Applicant provides.

22 CHAIRMAN BURNS: Okay. Are there
23 scenarios -- I realize this may be given the
24 evaluations that have done -- I -- actually before I
25 say that, is there anything you wanted to add on that?

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1 DR. STIREWALT: No, nothing else to add.

2 CHAIRMAN BURNS: Okay. Let me go to --
3 the second part is while -- I think we've done an
4 evaluation, made best judgments about the -- what we
5 would expect. Are there -- do you see scenarios that
6 might identify a hazard that might need to be
7 addressed as we come out? What would it be, I guess,
8 and -- or even the likelihood?

9 DR. STIREWALT: Well, again in the case of
10 the Florida location it probably isn't young faulting
11 just because those kinds of features don't permeate
12 Florida at all.

13 CHAIRMAN BURNS: Yes.

14 DR. STIREWALT: So it would likely be
15 related to the karst formation. And again, we've a
16 good handle on the maximum size of the voids. They
17 will do the proper grouting with the proper mix to
18 make certain those things are then filled.

19 And I don't know, Vaughn, do you want to
20 add any point on that at all?

21 MR. THOMAS: I think you've addressed it
22 correctly. I don't think I have anything to add to
23 that.

24 CHAIRMAN BURNS: Okay. Vaughn, let me ask
25 you, so you mentioned that this technique, a roller-

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1 compacted concrete foundation design, has been used in
2 some other application. Could you describe for me a
3 little bit more what types of facilities or
4 circumstances in which -- you mentioned I think a dam
5 maybe in South Carolina, or somewhere in the
6 Southeast.

7 MR. THOMAS: That's correct. It's true
8 that this is something that's never been addressed in
9 the nuclear industry, but they have been used in --
10 for dams, and many for dams and also pavements.

11 So the Applicant -- what the data is.
12 They compare some of the results from using some of
13 those applications and compare some of the results.
14 When we say "results," we're talking about aggregates
15 and fly ash and cement ratios and stuff like that and
16 compare that to what they will probably use for the
17 Levy application and show that the results are really
18 comparable and that they should be, that they would be
19 able to build the RCC at that particular site.

20 CHAIRMAN BURNS: Okay. Does the Applicant
21 want to add anything to --

22 MR. KITCHEN: No, that's -- we agree with
23 the response.

24 CHAIRMAN BURNS: Okay. Thank you. One
25 question. Prehearing question 15 relates to the size

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1 and shape of the proposed plume exposure and emergency
2 planning zone. And the response that the staff
3 discusses -- section the 10-mile radius around the
4 site; we use generally as you know a 10-mile radius,
5 that is included with the EPZ due to the location of
6 roadways and other identifiable features.

7 Could you maybe, Mr. -- I'm not sure --
8 ah, good. Dan's back.

9 (Laughter.)

10 CHAIRMAN BURNS: Ah, anticipated the
11 question. Well, help me out if you would. Can you
12 explain why that section is carved out and why the
13 staff is satisfied it meets the requirements with
14 respect to emergency planning zone, the plume exposure
15 part of the emergency planning zone?

16 MR. BARSS: Yes, Dan Barss again, team
17 leader in the Office of Nuclear Security and Incident
18 Response and I have been sworn in.

19 The regulatory requirement is or states
20 that an area of about 10 miles, so it's not specific
21 that it has to be exact 10 miles. If you further look
22 at the guidance it basically says use what are
23 reasonable boundaries that are recognizable,
24 identifiable and suitable for planning around.

25 And in fact in the process of developing

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1 this, I believe in the 2007 time frame, the Applicant
2 met with the state and local government authorities
3 who would be responsible for implementing the
4 emergency planning if it should ever need to be
5 implemented, and they identified to their satisfaction
6 what were reasonable boundaries to use to establish
7 those emergency planning zones. And they identified
8 specific roads or rivers or railroads, whatever. I'm
9 not sure exactly what they used. I don't remember the
10 specifics for this one. But they identified those and
11 then came to the conclusion that was acceptable.

12 In the case you're mentioning I don't know
13 the exact distance. I looked at a large-scale map and
14 you can see I think someone estimated it may have been
15 a mile or more in that area. But to the staff's
16 review and consideration, that is acceptable because
17 it's about 10 miles. There's no magic to that 10-mile
18 number. It's more a planning basis.

19 It's more important that you have
20 something that's a recognizable boundary that's easily
21 communicated. And in fact, it's the people on the
22 ground, the emergency management people that are going
23 to have to use this information in the future. We're
24 the ones that establish the boundaries. I have great
25 confidence that that is probably the best place to

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1 establish the boundaries for this plan.

2 CHAIRMAN BURNS: Okay. Thank you.

3 Commissioner Svinicki?

4 MEMBER SVINICKI: Thank you all for the
5 presentations. I have one question for the staff and
6 one for the Applicant, and I'll begin with the staff.

7 Gerry, I'm going to build a little bit off
8 of the Chairman's question on the geologic mapping and
9 you'll get a chance to talk about geology again.

10 Following up prehearing question 2 though,
11 you covered some of this ground with Chairman Burns,
12 but to have a proposed license condition on the
13 geologic mapping the staff responded that the
14 Applicant has provided sufficient data to support the
15 staff's safety findings, which is kind of the
16 procedural point I'm getting to. But the staff goes
17 on to state that the additional site-specific
18 information which would be generated by the
19 fulfillment of the license condition would provide
20 more information on geologic features and the
21 excavations.

22 And so what I'd like you to respond to is
23 again to clarify that the staff stands by its safety
24 conclusion based on the information that's in the
25 record now. But could you talk more about why the

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1 license condition will provide something essential?
2 Again Dr. Uhle testified to the fact that in any
3 changed condition that you found, if the staff learned
4 something was in error as these units were under
5 construction, the NRC always has the authority to say
6 this is not as it was indicated to be.

7 I'm trying to get to kind of what tipped
8 you towards the necessity of a license condition as
9 opposed to just saying we'll go in there once they've
10 excavated and look for any differing site conditions
11 or fundamental changes in understanding?

12 DR. STIREWALT: I'm glad to address that.
13 The reason is the information that we have right now
14 is based on surface observations and bore hole data.
15 And since it's not Swiss cheese, bore holes have some
16 reasoned spacing and literally you don't know
17 everything that's down there. So when you expose the
18 actual foundation bedrock where you can walk on that,
19 map it and look at it, it gives you a better feel for
20 that third dimension that literally you couldn't get
21 100 percent of your hands around with even good
22 subsurface data and certainly with the surficial
23 mapping. So that's the reason. It gives us a chance
24 and the Applicant to look, map that in detail and
25 carefully consider what's there again to see if it

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1 matches what was proposed from the other data set.

2 MEMBER SVINICKI: But with that response
3 does the staff still support its conclusion in the
4 Safety Evaluation Report Section 2.5.3.4.8 where you
5 state that you find that the Applicant provided a
6 thorough and accurate description of the potential for
7 tectonic and non-tectonic surface deformation at the
8 site?

9 DR. STIREWALT: Yes. Based on the
10 information they had at that time, yes.

11 MEMBER SVINICKI: Okay. Thank you.

12 And my second question is for the
13 Applicant. Regarding any draft or proposed license
14 conditions having to do with SAMGs and the broader
15 issue of mitigation strategies, as a current operator
16 of a fleet of nuclear plants right now, as the
17 implementation of flex strategies has occurred across
18 both Duke units and across the United States, have
19 there been opportunities that have presented any
20 lessons learned regarding mitigation strategies,
21 approaches for the potential Levy units or are they
22 fundamentally so different in terms of their passive
23 safety characteristics that there aren't any
24 applicable feedback from the ongoing operating reactor
25 experience?

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1 MR. TAYLOR: I can answer that. I think
2 you characterized it very well. The AP1000 is
3 significantly different for its flex strategies, so we
4 have stayed engaged, plugged in with the other AP1000s
5 and will learn more from them as they move forward
6 with implementing their strategies. But we are very
7 different from other sites. We do stay engaged with
8 our fleet, but AP1000 information would be more
9 applicable.

10 MEMBER SVINICKI: Okay. Thank you.

11 Thank you, Mr. Chairman.

12 CHAIRMAN BURNS: Well, thank you all for
13 the presentations. I would just add I enjoyed talking
14 about karst because I think it's based on a
15 Slovenian word for a geologic formation in Slovenia.
16 I remember going to the caves about 10 years ago
17 there. I got that more or less right? I think so.

18 MEMBER SVINICKI: That reminds of the
19 movie My Big Fat Greek Wedding where everything -- he
20 said you know that's Greek?

21 CHAIRMAN BURNS: Oh, yes, yes.

22 (Laughter.)

23 CHAIRMAN BURNS: Well, everything else
24 today will be Slovenian.

25 In any event I do appreciate the

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1 appearances by the witnesses on these two panels, the
2 safety issues. We will adjourn now. I think we're
3 scheduled to come back at 1:15. Have I got that
4 right? Yes, 1:15. And at that point we'll have the
5 Environmental Panel as well as any other matters we
6 have.

7 So again, thank you for the presentations
8 this morning. We are adjourned until 1:15.

9 (Whereupon, the above-entitled matter went
10 off the record at 12:56 p.m. and resumed at 1:18 p.m.)

11 CHAIRMAN BURNS: This afternoon we have
12 our environmental panel and then an opportunity for
13 the Applicant and the staff to make closing
14 presentations. We'll begin of course with the
15 environmental panel and as with the safety panel,
16 we'll have a presentation from the applicant, then the
17 staff and then open the floor to questions from the
18 Commission.

19 During this panel, the parties will
20 address the final Environmental Impact Statement, and
21 particularly two novels that the staff has identified
22 first, a biological opinion issued by the U.S. Fish
23 and Wildlife Service and second, alternative sites.
24 I remind the witnesses they are under oath, and again
25 they should assume we are familiar with their

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1 prehearing filings.

2 I'll ask the panelists to introduce
3 themselves as we go for each panel, and we'll start
4 again with the Applicant, and so Mr. Kitchen, maybe
5 you start and then your other colleagues, or Mr.
6 Fallon, either way.

7 MR. KITCHEN: Bob Kitchen, Director of
8 Licensing, Duke.

9 MR. FALLON: Chris Fallon, Vice President,
10 Nuclear Development.

11 MR. SNEAD: And Paul Snead, Manager of
12 Siting and Licensing Support, Duke Energy.

13 MR. YOUNG: Lorin Young with CH2M Hill.

14 CHAIRMAN BURNS: Okay, and you may
15 proceed.

16 MR. SNEAD: Thank you, Chairman. The
17 first slide, please. Next slide. In summary with the
18 environmental review, the environmental report was
19 completed in 2009, and it underwent thorough NRC staff
20 audits and also thorough analysis of the alternative
21 sites that were looked at.

22 There was extensive public outreach during
23 the environmental review process and consultations
24 with federal, tribal, state and local government
25 agencies. The final Environmental Impact Statement,

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1 of course, was published in April of 2012, and since
2 that time Duke Energy undertook a new and significant
3 information review process and we performed that
4 recently at least semi-annually, and the process and
5 the specifics of that process were audited by the NRC
6 staff in February and March of this year.

7 Next slide, please. With regard to
8 alternative sites, again this graphic shows the state
9 of Florida in the blue-shaded area is the service
10 territory. As the region of interest for our site
11 selection process, we selected the service territory
12 plus one county beyond it within the state of Florida,
13 to make sure we didn't overlook any obvious site that
14 was close to our service territory that may be useful
15 to us.

16 So with this region of interest, we
17 evaluated candidate areas and the graphic at the
18 bottom is showing a screening process where we
19 screened the candidate areas and have selected 20
20 potential sites, and those sites were selected based
21 on issues like proximity to major water sources,
22 proximity to transmission lines, low population areas,
23 ecological sensitivities and so forth.

24 We further screened those 20 potential
25 sites down to eight candidate sites which underwent

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1 additional screening, and ultimately came up with five
2 alternative sites. The alternative sites included the
3 Levy site, a site we called the Crystal River site,
4 which would be adjacent to the Crystal River energy
5 complex, and then Dixie, Putnam and Highlands, which
6 were named for the counties that they were
7 predominantly in.

8 These sites were further evaluated with
9 some specific geotechnical evaluations and further
10 surveys, and of course Levy was identified as a the
11 proposed site. The final Environmental Impact
12 Statement concluded that there was no environmentally
13 preferable alternative site, and that there was no
14 obviously superior site.

15 Furthermore, the Army Corps of Engineers,
16 in their record of decision for the 404 permit,
17 concluded that Levy was the least environmentally
18 damaging practicable alternative site.

19 Next slide, please. The U.S. Army Corps
20 of Engineers permitting process, as has been mentioned
21 before, they were cooperating agency with the NRC in
22 the preparation of the EIS, and a major component of
23 the Corps permitting process is the development of a
24 wetland mitigation plan that was developed to support
25 that process.

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1 The 404 permit was issued by the Corps in
2 December of 2015, and that memorializes the mitigation
3 plan within that permit.

4 Next slide, please. With regard to the
5 U.S. Fish and Wildlife Service's biological opinion,
6 no federally threatened or endangered species were
7 identified on site or that were likely to be adversely
8 affected. The only species that was subject to
9 potential adverse effect is the Florida scrub jay,
10 which was identified along some of the transmission
11 line corridors.

12 The U.S. Fish and Wildlife Service issued
13 a biological opinion in December of 2011. That
14 opinion included an incidental take statement for the
15 Florida scrub jay, and that incidental take statement
16 requires surveys to be for certain sensitive species
17 to be reconducted within two years of construction or
18 land clearing operations.

19 Next slide. That concludes the Duke
20 Energy presentation.

21 CHAIRMAN BURNS: Okay. We'll move then to
22 the NRC staff's presentation, and actually identify
23 yourselves.

24 MS. SUTTON: Mallecia Sutton.

25 MR. KUGLER: Andy Kugler, Senior Project

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1 Manager, Environmental and Technical Support Branch.

2 CHAIRMAN BURNS: Please proceed.

3 MS. SUTTON: Good afternoon. As I stated,
4 my name is Mallecia Sutton, and I am the Environmental
5 Project Manager for the Levy Units I and II
6 environmental review. With me today is Andy Kugler,
7 Senior Project Manager in the Division of Safety and
8 Environmental Analysis in the Office of New Reactors.

9 This presentation will discuss two novel
10 environmental issues. I will first discuss the
11 biological opinion and incidental take statement by
12 U.S. Fish and Wildlife Service, and Andy Kugler will
13 discuss the site selection process for alternative
14 sites for the Levy project.

15 Next slide, please. NRC initiated
16 consultation on the Section 7 of the Endangered
17 Species Act for the proposed Levy nuclear plant, Units
18 I and II, which included communication with the U.S.
19 Fish and Wildlife Service and National Marine
20 Fisheries Service in November of 2008.

21 NRC must consult with these agencies to
22 ensure its actions, such as issuance of the combined
23 license, will not jeopardize the continuing existence
24 of any threatened or endangered species, or critical
25 habitat within their jurisdiction. The U.S. Army

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1 Corps of Engineers is a cooperating agency on the Levy
2 nuclear plant Environmental Impact Statement and
3 performed its Section 7 consultation jointly with the
4 NRC.

5 Next slide, please. The NRC staff
6 coordinated its Section 7 consultation with the
7 National Environmental Policy Act, also known as NEPA.
8 NRC published a draft Environmental Impact Statement
9 on August 13, 2010 and made it available for public
10 comment for a period of 75 days.

11 NRC concurrently submitted a biological
12 assessment to Fish and Wildlife Service and National
13 Marine Fisheries for comments. Comments on the draft
14 EIS and biological assessment were received by the NRC
15 from both agencies. National Marine Fisheries
16 responded that no further action was required,
17 concluding its consultation with the NRC.

18 Fish and Wildlife Service concluded,
19 however, that the project would have adverse effects
20 on the Florida scrub jay. Fish and Wildlife comments
21 indicated that additional surveys for threatened and
22 endangered species may need to be completed before
23 Fish and Wildlife could consider consultation
24 complete.

25 Next slide, please. After several

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1 meetings between NRC staff and Fish and Wildlife to
2 discuss potential terms and conditions to protect the
3 Florida scrub jay, the Fish and Wildlife issued a
4 biological opinion and incidental take statement for
5 the project.

6 This was the first biological opinion
7 received in relation to a new reactor license
8 application under review by the NRC's New Reactor
9 Office. The biological opinion and incidental take
10 statement include terms and conditions addressing
11 protection of the Florida scrub jay.

12 Fish and Wildlife Service also indicated
13 in the biological opinion that updated licensing
14 surveys and protective measures for several additional
15 plant and animal species would be needed in order to
16 support a Fish and Wildlife conclusion that building
17 and operating the Levy nuclear facility would not
18 adversely affect those species.

19 Next slide, please. The NRC staff
20 contacted the Fish and Wildlife Jacksonville Field
21 Office to clarify the scope of the conditions
22 necessary to close Section 7 consultation, following
23 the coordination process to develop conditions that
24 would meet the needs of both agencies.

25 Next slide, please. The NRC and Fish and

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1 Wildlife agreed upon conditions to include an
2 environmental protection plan that met the intention
3 of the biological opinion and incidental take
4 statement. Those conditions cover a total of three
5 animal species and two plant species.

6 These subsequent interactions helped
7 formulated the NRC staff's conclusion in the final
8 EIS. Both NRC and Fish and Wildlife worked
9 efficiently and effectively together to meet both
10 agencies' regulatory obligations. That concludes my
11 presentation, and I'll turn it over to Andy Kugler.

12 MR. KUGLER: Thank you, Mallecia. Next
13 slide, please. Again, my name is Andy Kugler. I'm a
14 senior project manager. As directed by the
15 Environmental Standard Review Plan, the staff
16 evaluated the process that was used by the Applicant
17 to identify and compare sites. We concluded that the
18 process was reasonable, that it was consistent with
19 NRC guidance, and that it identified sites that were
20 among the best in the region of interest.

21 The staff also independently compared the
22 alternative sites to the proposed site and concluded
23 that none of the alternative sites was environmentally
24 preferable to the proposed site. After the draft
25 Environmental Impact Statement was issued, two issues

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1 were identified in which the staff believed the
2 Commission might have an interest.

3 One issue was related to the availability
4 of water at the Highland site, and the other issue was
5 related to the practicability of the Crystal River
6 site. I will discuss each of these issues in turn.

7 Next slide, please. Regarding the
8 Highland site, the South Florida Water Management
9 District submitted comments on the draft Environmental
10 Impact Statement regarding the water that would be
11 needed at the Highlands alternative site. The
12 comments indicated that the availability of water in
13 that area was very limited, and they listed a number
14 of challenges that would be faced if that site was
15 selected.

16 But while the Water Management District
17 indicated that obtaining the water would be difficult,
18 it did not say that it could not be accomplished. The
19 staff reviewed the comments from the Water Management
20 District and concluded that they were consistent with
21 the staff's determination that the impacts of water
22 use at the Highland site would be moderate.

23 Next slide, please. The staff considered
24 whether based on the comments from the Water
25 Management District, the Highland site should be

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1 removed from consideration in the Environmental Impact
2 Statement.

3 But the staff decided to retain the
4 Highland site because removing it from the
5 Environmental Impact Statement would serve no purpose,
6 and because of concerns raised by the Water Management
7 District confirmed the staff's determination that the
8 Highland site was not environmentally preferable.

9 More recently, during a review of an
10 alternative site for another application near the
11 location where Highlands is, the Water Management
12 District indicated to the staff that it believed that
13 the plant could obtain the water it would need through
14 a combination of approaches. This information
15 supports the decision to retain the Highlands site in
16 the Environmental Impact Statement.

17 Next slide. At the time the staff
18 prepared the Environmental Impact Statement, the
19 Crystal River energy complex adjacent to the Crystal
20 River alternative site had five operating units, one
21 nuclear and four fossil. As part of its application
22 for a permit to the U.S. Army Corps of Engineers, the
23 Applicant stated that it did not consider the Crystal
24 River site to be a practicable alternative.

25 As defined for the purposes of the Clean

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1 Water Act review for the least environmentally
2 damaging practicable alternative. The Applicant
3 indicated that its view was based on the concern about
4 having too much generation concentrated at one site,
5 increasing the potential for a major grid disruption.

6 The Corps of Engineers found the basis for
7 excluding the site from its evaluation to be
8 acceptable.

9 Next slide. The staff considered whether
10 under these circumstances the Crystal River site
11 should be retained as an alternative site for the
12 Environmental Impact Statement. The staff decided to
13 retain the site because it rated well from an
14 environmental perspective, and the site remained
15 viable for building new nuclear units.

16 The staff also recognized that the
17 standards for alternatives under the National
18 Environmental Policy Act, which calls for reasonable
19 alternatives, are somewhat different from the
20 standards under the Clean Water Act. The term
21 "practicable" can encompass issues such as cost and
22 logistics in light of the overall project purpose.

23 Thus, the Corps' Clean Water Act analysis
24 for the Levy permit application included consideration
25 of non-environmental factors to determine if an

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1 alternative was practicable. I'll note that the Corps
2 concluded that retaining the Crystal River site in the
3 Environmental Impact Statement was acceptable, as this
4 was a joint Environmental Impact Statement between the
5 NRC and the Corps. That concludes my remarks.

6 CHAIRMAN BURNS: Thank you again for both
7 panels for their presentations. I'll begin the
8 questioning on this panel. One of the things I'd like
9 to get some clarification on for the record, and with
10 respect to the staff's answer to prehearing question
11 55 regarding the EPA's comments on the draft
12 Environmental Impact Statement.

13 In its response, the staff noted that
14 impacts to wetlands was EPA's primary concern, that
15 EPA noted that there may be a need for "changes to the
16 current site layout or application of mitigation
17 measures that would reduce the environmental impacts."
18 Staff further noted, and you've touched on, that the
19 NRC and Army Corps of Engineers worked with EPA to
20 identify further reductions of wetlands impacts, and
21 these have been incorporated into the FEIS.

22 But the staff noted the FEIS actually
23 reports somewhat greater wetland impacts on the Levy
24 site, approximately 450 acres versus 403 acres I think
25 that are reported in the DEIS. But this is reflected

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1 by the fact that the final environmental statement
2 used more accurate wetland delineation data than the
3 draft impact statement.

4 Can you confirm there is indeed a
5 reduction in impact to wetlands realized from the work
6 done between the draft and the final impact statement?

7 MS. SUTTON: Hi, this is Mallecia Sutton.
8 Actually, the total wetland impacts from the draft to
9 the final environment impact statement is actually 690
10 acres for that impact, and what the applicant did was
11 to offset the impacts of wetlands was to purchase
12 mitigation banks, as well as they came in with a
13 supplemental mitigation plan, where they created 91
14 acres on the Levy site to offset those impacts.

15 So there is a -- between the DEIS and
16 FEIS, the number did change.

17 CHAIRMAN BURNS: Okay. Again, it's -- the
18 number changed.

19 MS. SUTTON: But working with the Corps
20 and working with the NRC, the Applicant did create
21 wetland banks, as well as brought in wetland banks
22 create wetlands, as well as mitigate the wetlands on
23 the Levy site. So that they created about 91 acres of
24 wetland on the Levy site.

25 CHAIRMAN BURNS: Okay. So the -- to

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1 review again, the staff's evaluation in sum then that
2 the impact is acceptable or not acceptable?

3 MS. SUTTON: It's moderate. Yeah, it's a
4 moderate impact.

5 CHAIRMAN BURNS: Moderate impact.

6 MS. SUTTON: Yes sir.

7 CHAIRMAN BURNS: Okay, all right. That's
8 all the questions I have. Commissioner Svinicki.

9 COMMISSIONER SVINICKI: Thank you very one
10 for your presentations. I have two questions and they
11 are for NRC witnesses, either if they're not -- if
12 they can't be addressed by the witnesses at the table,
13 perhaps someone else can come to the microphone.

14 The first has to do with the fact that
15 although not undisturbed, the Levy site is considered
16 a greenfield site, and that is a certain uniqueness in
17 comparison to other COL applications that NRO has
18 reviewed.

19 When you are reviewing a site that has a
20 currently operating reactor, by virtue of previous
21 licensing reviews and also just NRC's oversight of the
22 operations there, you have access to certain data and
23 baseline information.

24 Could someone discuss at a very high level
25 what challenges it might have posed to have the

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1 greenfield site? Did you have to do more extensive
2 fieldwork yourself? Is there anyone who could just
3 speak at a broad level about that?

4 MR. KUGLER: This is Andy Kugler. Well,
5 I guess I'll start off. As we indicated in response
6 to one of the prehearing questions, the guidance that
7 we follow for our reviews doesn't really consider
8 specifically a brownfield or a greenfield site. It's
9 written to cover whatever situation we're dealing
10 with.

11 Even in a lot of the places where we're
12 dealing with a reactor that would be built adjacent to
13 existing units, it would be built on ground that had
14 trees or fields. I mean, you know, it was not true
15 brownfield where they were going to build. So the
16 approach that we took to our evaluation is really not
17 any different for a site like this.

18 COMMISSIONER SVINICKI: Okay, thank you.
19 The second topic has to do with the Environmental
20 Justice analysis. The final Environmental Impact
21 Statement states that the review team conducted active
22 public outreach and onsite investigation in the region
23 of interest.

24 Could you just discuss at a high level how
25 you approach that in the Environmental Justice

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1 analysis and for Levy?

2 MS. SUTTON: I'd like to call Dan Mussatti
3 to the stand to give a general overview of the
4 process. Thank you.

5 CHAIRMAN BURNS: Again, please identify
6 yourself, your position and confirm that you've been
7 sworn in.

8 MR. MUSSATTI: My name is Daniel Mussatti.
9 I'm the socioeconomicist for NRO and I have been sworn
10 in.

11 CHAIRMAN BURNS: Okay. Please proceed.

12 MR. MUSSATTI: The process that we go
13 through for Environmental Justice is a several step
14 process, to make sure that we don't overlook anybody.
15 The first step involves taking the information that
16 comes from the Applicant, which is based on census
17 data and other demographic information, confirming
18 that independently and identifying places where we
19 think that there might be populations of interest.

20 They're not really populations that would
21 have an impact, an EJ impact, but they are a
22 population with a dense enough population of
23 minorities or low income people, that we really want
24 to take a closer look at them.

25 The next step in that process is to go to

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1 the area, typically during the scoping meeting, and we
2 do a windshield analysis is what we call it. We drive
3 around, we look at the area to see where low income
4 housing might be, to see the quality of the housing
5 that's available, these sorts of things for the
6 socioeconomic and for the Environmental Justice
7 impact.

8 Then we start talking with community
9 leaders. We'll bring our maps in and we'll show the
10 mayor this is what we found. Is this right, or have
11 we overlooked something? Occasionally, they'll come
12 and point out and they'll say there's a minority
13 community that lives over here, and it's not showing
14 up on your map. So we go there to find out what's
15 going on.

16 Once we gather all that information, we
17 come back and we combine all of that together and
18 start looking then for the pathways by which an impact
19 could reach those communities, to be able to determine
20 an EJ impact.

21 COMMISSIONER SVINICKI: Okay, thank you.
22 That's very informative. Thank you, Mr. Chairman.
23 I'll end there.

24 CHAIRMAN BURNS: Thank you. Commissioner
25 Baran.

1 COMMISSIONER BARAN: For the purpose of
2 organizing ourselves, I just have a couple of
3 questions for the Applicant, and then I think the rest
4 of my questions are for the staff. As I mentioned
5 earlier, with a COL comes a general license to
6 construct an onsite ISFSI, which is essentially a dry
7 cask pad. ISFSIs typically require disturbance of
8 several acres of land.

9 Understanding that there's uncertainty
10 about whether and when an ISFSI might be constructed
11 if you have the COL and you constructed the units, can
12 you talk a little bit about whether you would factor
13 in the level of disturbance, previous disturbance of
14 the land in selecting an ISFSI site?

15 Is that question -- you know, so if you
16 get to the point where you're going to build an ISFSI,
17 are you going to look, are you going to consider
18 whether it's previously undisturbed or not and to what
19 extent?

20 MR. SNEAD: Oh absolutely. Of course, we
21 haven't made a decision that we would need a dry
22 storage facility as of yet. But if we did, we would
23 look and we could put it on previously disturbed land
24 or land that had previously been certified as part of
25 our project.

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1 If we ever identified land outside of that
2 certification if you will with the state, where it's
3 -- we're going to have to disturb additional wetlands
4 or, you know, something that was not in our previous
5 certification, we would have to do the appropriate
6 surveys to make sure that we're not affecting any TAV
7 or that we have cultural resource surveys for the area
8 that we're going to be disturbing and those type of
9 activities would have to take place.

10 The likelihood of that, if it's an area
11 that's not previously certified for disturbance, we
12 would have to get a modification to our certification
13 with the state.

14 COMMISSIONER BARAN: Okay, and so just so
15 I understand, as this is more of a background question
16 I guess, are you certified for disturbance on the
17 entire site plot right now?

18 MR. SNEAD: Basically, we've identified
19 the areas that will be disturbed by the construction
20 and the operation of the plant, and those have been
21 surveyed from a cultural resource standpoint, from a
22 threatened and endangered species standpoint. They've
23 been identified in terms of their impacts they may
24 have on wetlands or even secondary impacts to
25 wetlands.

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1 So all of that is part of the process
2 that's previously been done. So what I'm saying is if
3 it was anything that would go beyond that to a new
4 location that hadn't been thought of previously on
5 this property, we would have to go through those same
6 steps again.

7 COMMISSIONER BARAN: Okay, thanks. All
8 right. You can slide back over. You're very
9 practiced at that. Well, let me ask a few questions
10 to the staff about the ISFSI general license that
11 accompanies a combined license, if it were to be
12 issued.

13 Section 106 of the National Historic
14 Preservation Act requires federal agencies to consult
15 with the appropriate State Historic Preservation
16 Officer or SHPO, and try, if an activity might impact
17 properties that are historic or have a cultural or
18 religious significant to tribes.

19 So that consultation is part of NRC's
20 licensing process. In the staff's NHPA, consultation
21 with Florida's State Historic Preservation Officer and
22 the appropriate tribes, did the staff explain that a
23 general license for an ISFSI would automatically
24 accompany a combined license?

25 MS. SUTTON: When the staff consulted with

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1 the SHPO, the staff with the Corps of Engineers looked
2 at the entire 31-acre site, and in the certification
3 for the state, as well as the Corps permit, it talks
4 about any future disturbance. So no construction
5 activity, as stated in Corps Permit No. 9, of any type
6 related to the Levy project, no construction
7 activities can take place until surveys are completed.

8 Then when you look at the state
9 conditions, it says if any future -- during any
10 construction activities, if anything is found they
11 need to stop and consult with SHPO as well, and notify
12 the appropriate agencies. So as part of NRC's
13 consultation, it also -- and part of the Historic
14 Preservation Act, it talks about future disturbance.

15 So that's covered under both the state's
16 certification as well as the permit for the Corps.

17 COMMISSIONER BARAN: Okay. So that's --
18 so there was a discussion at a general level about
19 future disturbance, activities that could cause future
20 disturbance. In the description of what this project
21 would be in the consultations under NHPA with the
22 SHPO, did the staff ever say part of this project
23 could include an ISFSI, that that license accompanies
24 the combined license specifically?

25 MS. SUTTON: I would like to take that

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1 response back.

2 COMMISSIONER BARAN: I'd like an answer to
3 that now, if we can get it.

4 MS. HERRITY: Hello. My name's Jennifer
5 Dixon Herrity. I am currently acting as Licensing
6 Branch Force Chief. Normally, I'm the Environmental
7 Projects Branch Chief and I was sworn in.

8 CHAIRMAN BURNS: Okay. You can proceed.

9 MS. HERRITY: The question was whether or
10 not we consulted on it? We did not.

11 COMMISSIONER BARAN: Okay.

12 MS. HERRITY: When we initially did the
13 consultation that was done back in the 2011 time
14 frame, 2012, we did not.

15 COMMISSIONER BARAN: Okay, and so is --
16 was that unusual? Is it unusual for the staff to omit
17 discussion of this aspect of a new reactor project
18 during consultation, or has that been the typical
19 practice for COLs?

20 MS. HERRITY: I think that this has been
21 the typical practice. We talk about the project in
22 general. We do not go into details about what could
23 happen.

24 COMMISSIONER BARAN: Okay, and so let me
25 just ask the basic question here, which is why didn't

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1 the staff explain to the Florida SHPO that a combined
2 license includes an ISFSI general license? Why is
3 that not something that was discussed during
4 consultation?

5 MS. HERRITY: It wasn't something that was
6 specifically covered at the time, because it was an
7 option of something that could happen. Now going
8 forward, we do note that we should discuss that in the
9 future. It's a lesson that we've learned, and we are
10 in the process of modifying our environmental standard
11 review plan.

12 That is something that we'll look at in
13 the future, how we're going to address future
14 disturbances.

15 COMMISSIONER BARAN: So going forward, you
16 wouldn't use the same approach to consultation on this
17 issue that you used here?

18 MS. HERRITY: No, that is correct. We
19 would not do it the way we did it before.

20 COMMISSIONER BARAN: After an NHPA
21 consultation was concluded, did the staff contact the
22 Florida SHPO to notify them that the Levy project
23 could include an ISFSI?

24 MS. SUTTON: Yes, we did.

25 COMMISSIONER BARAN: And why did the staff

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1 do that?

2 MS. SUTTON: The staff and management with
3 the -- with some of the staff members who had raised
4 some concerns wanted further outreach to ensure that
5 the SHPO was a way and to just ensure that what we
6 consulted on on the project was still sufficient and
7 valid.

8 And during our discussion, they had said
9 that what we have done, because the whole site was
10 consulted on and there was provisions for future
11 disturbance.

12 The consultation was still concluding.

13 COMMISSIONER BARAN: Okay. And did the
14 staff think that this call -- it was a phone call?

15 MS. SUTTON: Yes, sir.

16 COMMISSIONER BARAN: Did the staff think
17 that this call was necessary to comply with the NHPA?

18 MS. SUTTON: We -- based on the process
19 for historic preservation, and even the letter that
20 came in yesterday, we have complied and concluded
21 consultation.

22 But, since there was some concerns raised
23 that maybe we wanted to just ensure that they were
24 aware that there would be future disturbance and they
25 felt like what was in place was fine.

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1 COMMISSIONER BARAN: Okay.

2 And so, and the call with the Florida
3 SHPO, or SHPO staff, can you give me a little bit of
4 granularity on what the staff told the SHPO?

5 MS. SUTTON: Well, since I made the call
6 with the --

7 COMMISSIONER BARAN: Okay, well, you would
8 know.

9 MS. SUTTON: Yes.

10 We explained to them that we're getting
11 ready for the mandatory hearing and we wanted them to
12 know that there would be a possibility of a spent fuel
13 nuclear facility that may be built onsite.

14 And the question was asked, well, what was
15 the 8th? And we explained to him that 8th was the
16 entire project site that we consulted on. Then he
17 said he had to go back, he was going to copy us to
18 review the -- review the notes and our project
19 information.

20 And then he came back and said that, based
21 on our previous consultation, that we were still in
22 good standing and a thank you and look forward to
23 working with us in the future.

24 COMMISSIONER BARAN: Okay. So, the SHPO
25 wasn't concerned?

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1 MS. SUTTON: No, sir. He was not
2 concerned.

3 COMMISSIONER BARAN: Okay. But just to be
4 clear, though, this discussion of the ISFSI license
5 occurred after consultation with the SHPO was
6 complete?

7 MS. SUTTON: Yes.

8 COMMISSIONER BARAN: Okay. And just to
9 understand the significance of this issue, or maybe
10 lack of significance of it, as I understand it, the
11 NHPA consultation is about ground disturbance and the
12 impact on historic and cultural resources.

13 Based on your conversations with Florida
14 SHPO and others, for a SHPO, does it matter what is
15 being constructed? Or, is the size of the area of
16 disturbance really all that matters to a SHPO?

17 MS. SUTTON: I can't make assumptions, but
18 I know when we consult, we consult on the entire site.

19 So, let's say, for instance, if we had
20 just consulted on the acres for Levy and we were
21 planning to -- they're planning to build an ISFSI
22 somewhere else on the site, then we'll then -- we'll
23 definitely have to consult on that particular
24 activity.

25 But, the way we do our NEPA review, we try

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1 to consult on the entire site. So, once they're aware
2 of the surveys and aware of what maybe there, then
3 they're comfortable that, based on their regulations,
4 that they put provisions that any future activity, it
5 doesn't matter what it is, the ISFSI could be building
6 a road, that is covered under what we consulted on.
7 So, it does matter for them.

8 COMMISSIONER BARAN: Okay. So, here, you
9 consulted on the entire site?

10 MS. SUTTON: Yes, sir.

11 COMMISSIONER BARAN: And your
12 understanding is that, for the purposes of a SHPO,
13 whether it's a spent fuel pad or a parking lot,
14 doesn't really matter. Because, the issue is
15 disturbance of the land?

16 MS. SUTTON: Yes.

17 COMMISSIONER BARAN: Okay.

18 MS. SUTTON: A protection of the resource
19 if something is found.

20 COMMISSIONER BARAN: Okay. And so, and we
21 talked about this a little bit and kind of fleshed out
22 the issue, and so, what I'd ask you to do is just take
23 30 seconds or a minute or however long you want, and
24 just explain the staff's view about why what was done
25 here was adequate to meet the requirements of NHPA,

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1 even though there was no explicit specific discussion
2 during consultation of the ISFSI general license that
3 would accompany the COL?

4 MS. SUTTON: Well, what we did in Chapter
5 6 of the FEIS, we incorporated by reference the
6 license renewal guides on spent fuels, spent nuclear
7 fuel on the site. And then, so, that was in Chapter
8 6.

9 And then we also did a new review on the
10 continued storage and spent fuel of the license life.
11 And, both times, the staff found that the spent fuel,
12 if needed, I believe, the site would be small.

13 So, based on that review, the staff felt
14 that we adequately addressed.

15 COMMISSIONER BARAN: But, the NEPA
16 requirement to analyze environment impacts is separate
17 from the NHPA requirement to consult, right?

18 MS. SUTTON: Yes, but we do our National
19 Historic Preservation Act under the NEPA review.

20 COMMISSIONER BARAN: Okay.

21 CHAIRMAN BURNS: Identify yourself and --

22 MR. FLANDERS: Hi, my name is Scott
23 Flanders, the Director of Division Site Safety and
24 Environmental Analysis. I have been sworn in.

25 I think I understand your question,

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1 Commissioner Baran, it goes to why we believe our
2 consultation activity was complete, based on what we
3 did.

4 When we consult, as Mallecia was
5 indicating, we consult on the entire project, so it's
6 an area potential effect that we consider.

7 And then, looking at the area potential
8 effect in the consultation with the SHPO, we talk
9 about the potential construction operation in that
10 area.

11 As you well pointed out, it's really
12 focused on the potential historic cultural properties,
13 independent of what's going to cause the disturbance,
14 but the potential to disturb them and how you could
15 potentially either mitigate or avoid that disturbance.

16 And that's the focus of the consultation
17 activity, independent of the temporal aspect of when
18 that occurs, that the focus of the consultation.

19 And in doing that consultation activity
20 for the Levy site, we had to have those discussions.
21 We believe that our consultation activities along with
22 our understanding of the procedures put in place by
23 the applicant, we came away believing that the
24 resources were adequately protected.

25 COMMISSIONER BARAN: Okay, thank you.

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1 Let me just ask about a couple other
2 issues.

3 I wanted to follow up on the pre-hearing
4 questions 35, 37, 38 which addressed the wetland
5 mitigation plan that Duke issued in September 2015.

6 As you mentioned, the revised plan
7 includes the clearing and excavation of 91 acres of
8 upland habitat for the purposes of wetland creation.

9 The staff explained that the revised plan
10 did not require a supplementation of the final EIS
11 because it did not constitute new and significant
12 information.

13 How did the staff conclude that the
14 conversion of 91 acres of land into wetlands did not
15 meet the significance threshold for supplementation?

16 MS. SUTTON: I would like to call on my
17 biologist who did the actual analysis to explain that
18 to you.

19 Can I have Peyton Doub to the stand,
20 please?

21 COMMISSIONER BARAN: Thanks.

22 MS. SUTTON: Thank you.

23 MR. DOUB: My name is Peyton Doub. I'm a
24 terrestrial ecologist and wetland scientist with the
25 Office of New Reactors. And I have been sworn in.

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1 CHAIRMAN BURNS: Okay, please proceed.

2 MR. DOUB: I performed the analysis, the
3 new and significant analysis of the revised wetland
4 mitigation plan which did call for the conversion of
5 91 acres of uplands, i.e., non-wetlands, on the Levy
6 site to wetlands as part of the mitigation.

7 As part of that effort, I visited the
8 site, had discussions with the applicant and with the
9 Corps of Engineers and reviewed the relevant
10 documentation.

11 As a result of that review, I determined,
12 based on my experience as a wetland scientist, that
13 the nature of the conversion of these uplands was less
14 like a development project, less like the excavation
15 associated with development and more like the
16 excavation associated with the conservation project,
17 relatively shallow, done in a way to prepare not only
18 for greater wetland hydrology, i.e., greater wetness,
19 but also to prepare a planting bed for planting native
20 wetland vegetation.

21 All of the affected upland areas are
22 planted pine plantations that have been intensively
23 managed for silviculture for the last several decades.

24 None of these habitats or the regionally
25 unique upland sand hill type habitats that are favored

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1 by the threatened and endangered species that we had
2 to address in the biological assessment and response
3 to the -- and the biological opinion and incidental
4 take statement.

5 Based on this, I concluded that the
6 changes to the wetland mitigation plan involving the
7 91 acres of upland represented an improvement to the
8 wetland mitigation plan that is in the spirit of
9 wetland mitigation and not further impacts requiring
10 a supplemental environmental impact analysis.

11 Thank you.

12 COMMISSIONER BARAN: Thanks.

13 I think that answers my question on that.

14 Let me just follow up on pre-hearing
15 question 43.

16 The hawksbill turtle is listed as
17 endangered under the Endangered Species Act. I would
18 like to ask, but I'm not going to, if a hawk does not
19 have bill and turtle doesn't have bill, how it's a
20 hawksbill turtle? I'm not going to ask you that. I
21 would like to know, but I'm not going to ask it.

22 Can you walk us through how the staff
23 determined whether the hawksbill turtle is present at
24 the Levy site? There's already movement.

25 MS. SUTTON: I guess -- here he comes.

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1 CHAIRMAN BURNS: Identify yourself.

2 MR. MASNIK: Mike Masnik, I'm an aquatic
3 ecologist and, yes, I've been sworn in.

4 The hawksbill turtle is one of four or
5 five turtle species that are typically found in
6 tropical waters around Florida.

7 It had, turns out, they have been captured
8 and identified one specimen a number of years ago.
9 And it is not typically found in those waters.

10 The more common species is the green
11 turtle and the loggerhead which are the species that
12 are typically found at -- used to be collected at the
13 Crystal River Energy Center.

14 COMMISSIONER BARAN: And just at a high
15 level, though, how did the staff determine that this
16 wasn't a location where you would expect to see this
17 species of turtle? Was it related to the work that
18 had been done in Crystal River? Was there something
19 separate done?

20 MR. MASNIK: Exactly.

21 COMMISSIONER BARAN: So, Crystal River is
22 like less than ten miles away.

23 MR. MASNIK: Crystal River has a
24 biological opinion and requires the collection of data
25 of species of turtle captured on the intake screens.

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1 And there was one specimen taken during the period of
2 sampling.

3 COMMISSIONER BARAN: And that specimen was
4 at Crystal River?

5 MR. MASNIK: Yes, that's correct.

6 COMMISSIONER BARAN: Okay. And did that
7 raise any concerns about the prior conclusions about
8 the presence of that turtle species in the area?

9 MR. MASNIK: No, we think that was just an
10 unusual occurrence. Typically, we do not see
11 hawksbill turtles captured at power plants.

12 COMMISSIONER BARAN: Okay, thank you.

13 Thank you, Mr. Chairman.

14 CHAIRMAN BURNS: Okay. All right, thank
15 the panelists here for their presentations and the
16 discussion here on the environmental matters.

17 We'll proceed to then the closing
18 statements from the applicant and the staff.

19 We'll take a moment here to clear the
20 table.

21 All right, thanks everyone. We've now
22 come to the opportunity for closing statements from
23 the Applicant and from the staff. And we'll start
24 with the Applicant.

25 Mr. Fallon?

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1 MR. FALLON: Thank you. Thank you, Mr.
2 Chairman and Commissioners.

3 Thank you for your time and effort that
4 you put in preparing and conducting this hearing. We
5 appreciate your insights and questions and we will
6 ensure that any follow up information you may want is
7 addressed.

8 I would also like to recognize the work
9 done by the NRC staff. I believe this hearing has
10 fully demonstrated the exhaustive review done by the
11 staff and validates the staff's safety and
12 environmental findings.

13 We certainly agree with the conclusions
14 that the AP-1000 is safe. The environmental
15 considerations have been addressed and the Commission
16 has the information necessary to make the required
17 findings for the issuance of the Levy COL.

18 I also want to recognize the
19 professionalism and thoroughness of our Duke Energy
20 team in addressing the information it needs and the
21 emergent issues required to complete the COLA review.

22 Our Duke team, the Joint Venture team and
23 the Westinghouse team combined have invested several
24 hundred thousand man-hours to prepare the COL
25 application and to complete the COLA review.

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1 Duke Energy fully supports the standard
2 design approach. We have benefitted from the lead
3 plant application and the construction activities and
4 think that our experience will also benefit supplicant
5 applications.

6 It should be no surprise that with the new
7 design, there are emergent issues that must be
8 addressed. We believe that the benefits of a
9 certified and standard design will not be fully
10 realized until the completion of the first of the kind
11 construction currently in progress.

12 Our work to address emergent industry
13 issues and the AP-1000 specific issues has not reduced
14 our confidence in the AP-1000 design and the
15 significant value of the passive safety systems.

16 Obtaining the Levy COL is key to Duke
17 Energy Florida's ability to meet future generation
18 requirements.

19 Our planning identifies the need for
20 baseload generation that support the addition of the
21 Levy plants in the 10 to 20 year horizon.

22 The generation fuel mix for Duke Energy
23 Florida is currently approximately 80 percent natural
24 gas and that number is growing.

25 Additionally, we face uncertainty

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1 regarding the impact of carbon limitations. A COL
2 minimizes the construction risks and provides us the
3 ability to implement 2,200 megawatts of new nuclear
4 generation five to seven years earlier than otherwise
5 would be able to.

6 These are significant strategic
7 considerations in making a final decision to move
8 forward on a multi-billion dollar mega-project like
9 the Levy project.

10 The company will make a final decision on
11 new nuclear generation in Florida in the future based
12 upon, among other factors, energy needs, project
13 costs, carbon regulation, natural gas prices, existing
14 or future legislative provisions on cost recovery and
15 the requirements of the NRC's combined operating
16 license.

17 Mr. Chairman and Commissioners, thank you,
18 again, for your efforts. We welcome any further
19 questions you may have regarding the Levy Unit 1 and
20 2 combines license application.

21 CHAIRMAN BURNS: Thank you very much.

22 For the staff? Wheel on up.

23 MS. UHLE: So, again, thank you, Chairman
24 Burns.

25 Just to introduce this panel, my name is

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1 Jennifer Uhle. I'm the Director of the Office of New
2 Reactors.

3 With me on this panel, Frank Akstulewicz
4 to my right and Sam Lee to my left.

5 Before I start my remarks, I would like to
6 take the opportunity to correct the record. I
7 misspoke during the first panel. And I indicated that
8 the staff had devoted 83 hours to the review of the
9 combined license.

10 We are not quite that efficient. It was
11 written down and I guess I skipped right over that
12 83,000 hours. So, hopefully, that sets the record
13 straight.

14 CHAIRMAN BURNS: Well, without objection,
15 we'll -- I note the corrections.

16 MS. UHLE: Okay. Thank you. And I
17 apologize for any confusion that may have caused.
18 Again, we thank you for the opportunity to speak
19 today.

20 In the staff's paper to the Commission
21 pertaining to this mandatory hearing, the staff's
22 final safety evaluation report and final environmental
23 impact statement, and in our presentations to you
24 today during this hearing, we have provided an
25 adequate basis for making the necessary findings set

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1 forth in 10 CFR 52.97 and 10 CFR 51.107 to support the
2 issuance of the combined licenses for the Levy Nuclear
3 Plant Units 1 and 2.

4 In this hearing, we have described why the
5 staff's review of the Levy Nuclear Plant Units 1 and
6 2 combined license application has been both thorough
7 and complete.

8 I will take this moment to acknowledge the
9 adjective that Mr. Fallon provided both an exhaustive
10 review and indicate that we certainly agree with that.

11 The review was appropriately focused by
12 the finality accorded to issues within the scope of
13 the AP-1000 design certification.

14 The staff has demonstrated the
15 thoroughness of our review in part through its
16 reliance on staff guidance and interaction with the
17 Advisory Committee on Reactor Safeguards.

18 The ACRS agrees with the staff's
19 conclusion that the combined licenses for the Levy
20 Nuclear Plant Units 1 and 2 should be issued.

21 Today, we highlighted certain aspects of
22 our safety and environmental reviews. We explained
23 that the staff's evaluation of the geologic and
24 geotechnical characteristics of the site and the
25 design of the roller compacted concrete below the

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1 foundation.

2 We explained how the staff analyzed the
3 applicant's request for an exemption from the AP-1000
4 certified design relating to a design change to the
5 common state return portion of the passive heat
6 removal system.

7 During the staff's environmental panel, we
8 discussed the biological opinion by the U.S. Fish and
9 Wildlife Service and the evaluation of the alternative
10 sites.

11 We also highlighted our process for
12 compliance with NRC's National Environmental Policy
13 Act regulations specified in 10 CFR Part 51 and other
14 applicable environmental statutes and appropriate
15 interactions with other government agencies and the
16 public.

17 We are similarly confident through the
18 ITAAC process, the construction reactor oversight
19 process, inspections of construction activities,
20 inspections of operational programs and oversight of
21 the transition from construction to operation, we will
22 be able to confirm that the plant has been constructed
23 and will operate in conformance with the licenses, the
24 Atomic Energy Act and the Commission's regulations.

25 The applicant understands the necessity of

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1 complying with the requirements and also understands
2 what needs to be done if any noncompliance is
3 discovered, including determining the safety
4 significance, determining operability, determining the
5 extent of condition and taking prompt corrective
6 action to restore compliance.

7 In those instances in which we relied on
8 commitments, we have done so in accordance with the
9 Commission's commitment process and practices.

10 We have verified that there is an
11 established process by which the licensee maintains
12 commitments, implements changes and we, of course,
13 oversee these changes, if any are made.

14 The staff appreciate the opportunity to
15 present to the Commission today the results of our
16 thorough, complete and exhaustive review.

17 This concludes the staff's presentation.

18 CHAIRMAN BURNS: Okay, thank you.

19 We've now reached the point for final
20 questions and closing remarks.

21 And the Commission, I think we'll start
22 out with any final questions.

23 Commissioner Svinicki, do you --

24 I just -- I have two. Then, first,
25 Jennifer sort of prompted this question is with

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1 respect to corrections, I take it there are no other
2 obvious corrections that the staff would like to make
3 to its presentations at this time?

4 MS. UHLE: There are a few corrections
5 that we'd prefer to make during the review of the
6 transcript, if possible.

7 CHAIRMAN BURNS: Okay, that's fine. And
8 I'll get to that sort of procedural aspect about
9 corrections to the transcript.

10 I'll ask, again, the Applicant, Duke,
11 whether any particular matters they want to elaborate
12 on?

13 MR. KITCHEN: No, we have no corrections
14 to the previous responses.

15 CHAIRMAN BURNS: Okay. And as I say, I'll
16 get to the point, we'll talk about potential
17 transcript corrections.

18 The one final question I had is, I'm aware
19 that yesterday that the Florida SHPO submitted to the
20 docket, and just that's really just submitting to the
21 docket, a letter. It's a letter from Timothy Parsons
22 who's the Director of Division of Historical Resources
23 and the State Historic Preservation Officer just
24 commenting that, generally, the consultation had been
25 concluded and that he looked forward to future work as

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1 necessary with the staff.

2 My question, I think, for staff counsel,
3 is this letter part of your exhibit list? Is this --
4 has this been admitted?

5 MR. ROACH: Kevin Roach for the NRC staff.

6 No, since it was received yesterday, we
7 have not --

8 CHAIRMAN BURNS: Okay.

9 MR. ROACH: -- submitted it as an exhibit,
10 but we can do so if you would --

11 CHAIRMAN BURNS: Well, my questions on
12 docket, it may well be, you know, without objection,
13 I would ask that it be admitted. But, it may be more
14 appropriate for you to do so. I'll leave to you all
15 the procedural thing.

16 But, I think, you know, given, I think, we
17 had a good discussion on the consultation, knowing
18 that we had this letter, and I know Ms. Sutton spoke
19 to the oral, I think, in response to Commissioner
20 Baran's questions, the oral exchange.

21 But, I think it's useful if we have this
22 -- knowing this particular letter, to have it on the
23 record for the mandatory hearings. So, I might
24 suggest that you do or submit that with your post-
25 hearing statement.

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1 MR. ROACH: We can certainly do that.

2 CHAIRMAN BURNS: Because I'd like to see
3 that there. Okay?

4 That's all I have.

5 Any closing remarks, Commissioner
6 Svinicki?

7 COMMISSIONER SVINICKI: Well, I would just
8 like to commend the professionalism and the competency
9 demonstrated by all of the witnesses, both those at
10 the table and any who came to the microphone today.

11 By my note, although we may have some
12 supplementation or correction in the record, I don't
13 -- I didn't note that there were any issues that the
14 Commission raised that there was not some extremely
15 knowledgeable person sworn in and ready to come to the
16 microphone to provide some sort of response or
17 supplementation to the record on that topic.

18 And, speaking for myself, in reviewing the
19 record and the response to the pre-hearing questions,
20 was impressed by the amount of work and analysis. Any
21 issue or question that I had, I was able to either
22 find in the record or receive, in response to the pre-
23 hearing questions, something very in depth and
24 fulsome. And the issues that I thought I had
25 identified, I think I have probed and been very

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1 satisfied.

2 That being said, I may, of course, upon
3 consideration of this hearing and study of the
4 transcript, identify post-hearing questions. If I do,
5 I will submit those through the process that the
6 Chairman will describe.

7 But, again, I think all of us representing
8 NRC here today know that compliance with our
9 requirements yields a very safe utilization and
10 harnessing of nuclear powered operating sites.

11 The AP-1000 and advanced reactors, of
12 course, provide a measure of possible safety that is
13 beyond what we have today. When I marry that with the
14 very thorough environmental evaluation that's going
15 on, I think it provides a very rich and comprehensive
16 record with regard to the Levy application.

17 So, I look forward, as the Chairman said,
18 to deliberating as a body and, in a timely way, but
19 with due consideration to the complexity of the issues
20 arriving at a Commission decision on the issuance of
21 these licenses.

22 Thank you, again, to all the participants.

23 Thank you, Mr. Chairman.

24 CHAIRMAN BURNS: Thank you, Commissioner.

25 Commissioner Baran?

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1 COMMISSIONER BARAN: I just want to add my
2 thanks to the NRC staff and all of our participants
3 today for your hard work throughout the review of this
4 application.

5 I found everyone's preparation for today's
6 hearing to be just apparent throughout the day.

7 I found the hearing to be very valuable
8 and thank you, again.

9 CHAIRMAN BURNS: Thank you, Commissioner.
10 And I'll first start with the instructions for what
11 you may expect in the near future.

12 We will have a deadline for responses to
13 post-hearing questions. It will likely be August 11,
14 2016, unless we direct otherwise.

15 You will know what to address because we
16 expect to have the secretary issue an order with any
17 post-hearing questions by August 4, 2016. And we'll
18 set the time, the final time for response in that
19 order.

20 We will also give an opportunity for
21 transcript corrections which I expect to be August 9,
22 2016. The secretary will plan to issue an order
23 requesting proposed transcript corrections by August
24 2, 2016. And, of course, you would have the
25 transcript available in order to inform us whether

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1 there are any transcript corrections that need to be
2 made.

3 And, as we've said before, and
4 Commissioner Svinicki reiterated, we would expect to
5 issue a final decision in this matter promptly with
6 due regard to the complexity of the issues.

7 I want to add my thanks to both the
8 applicant and the NRC staff who have appeared before
9 us today or have worked hard in the back rooms or
10 where ever they may be in providing the information
11 that's necessary to support an application like this
12 and for conducting the review, both on the safety and
13 on the environmental side.

14 It's no small undertaking, and as Director
15 Uhle has informed us, it's much more than 83 hours,
16 where ever it is.

17 I also, though, I want to express my
18 thanks to the Office of the Secretary who helps manage
19 us through the proceedings, maintaining the docket and
20 taking care of that.

21 And, finally, the Office of Commission
22 Appellate Adjudication led by Brooke Poole. And I
23 think Susan Spicer's -- Brooke Clark, excuse me,
24 Brooke Poole-Clark -- who leads that office.

25 This actually marks the 25th anniversary

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1 of the Office of Commission Appellate Adjudication
2 which was formed in 1991. I hate to say it, I was the
3 first Director.

4 But, one of the things the Commission did
5 in establishing OCAA was provide for an for an office
6 that helps us in preparing, not only for the appeals
7 that we have to determine from a licensing board
8 decisions, but in more recent years, to help us
9 through the process of conducting these mandatory
10 hearings. And they've done an excellent job with
11 that. So, I want to express my thanks to them as
12 well.

13 And, with that, I appreciate, again, your
14 attendance here.

15 We are adjourned.

16 (Whereupon, the above-entitled matter went
17 off the record at 2:20 p.m.)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
PROGRESS ENERGY FLORIDA, INC.) Docket Nos. 52-029-COL
) and 52-030-COL
)
(Levy County Nuclear Power Plant)
Units 1 and 2))
Mandatory Hearing)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **ORDER (Setting Deadline for Proposed Transcript Corrections)** have been served upon the following persons by Electronic Information Exchange.

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[Original signed by Clara Sola]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 2nd day of August, 2016