

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

DOMINION VIRGINIA POWER

(North Anna Power Station, Unit 3)

Docket No. 052-017-COL

ORDER
(Setting Deadline for Proposed Transcript Corrections)

The Commission held an evidentiary hearing on March 23, 2017, 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 April 4, 2017. 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 28th day of March, 2017.

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: Hearing on Combined License for North Anna
Nuclear Plant, Unit 3: Section 189a of the
Atomic Energy Act

Docket Number: N/A

Location: Rockville, Maryland

Date: March 23, 2017

Work Order No.: NRC-2964

Pages 1-163

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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HEARING ON COMBINED LICENSE FOR NORTH ANNA
NUCLEAR PLANT, UNIT 3: SECTION 189a OF THE
ATOMIC ENERGY ACT

+ + + + +

THURSDAY,

MARCH 23, 2017

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Commission met in the Commissioners'
Hearing Room at the Nuclear Regulatory Commission, One
White Flint North, 11555 Rockville Pike, at 9:00 a.m.,
Kristine L. Svinicki, Chairman, presiding.

COMMISSION MEMBERS:

KRISTINE L. SVINICKI, Chairman

JEFF BARAN, Commissioner

STEPHEN G. BURNS, Commissioner

1 ALSO PRESENT:

2 ANNETTE VIETTI-COOK, Secretary of the Commission

3 MARGARET DOANE, General Counsel

4

5 NRC STAFF:

6 FRANCIS AKSTULEWICZ, Director, Division of New

7 Reactor Licensing (DNRL), Office of New Reactors

8 (NRO)

9 ANNA BRADFORD, Deputy Director, DNRL, NRO

10 MARCIA CARPENTIER, Office of the General Counsel

11 MANAS CHAKRAVORTY, Structural Engineer, Division

12 of Engineering, Infrastructure, and Advanced

13 Reactors (DEIA), NRO

14 VLADIMIR GRAIZER, Geophysicist, Division of Site

15 Safety and Environmental Analysis (DSEA), NRO

16 VONNA ORDAZ, Acting Director, NRO

17 JAMES SHEA, Project Manager, DNRL, NRO

18 AARON "MATT" THOMAS, Engineer, Division of

19 Safety Systems and Risk Assessment (DSRA), NRO

20

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ALSO PRESENT:

REGINA BORSH, Dominion Consulting Engineer
MARK GILES, Director, Nuclear Project Technical
Support, Dominion Virginia Power
JOSEPH HEGNER, Licensing Manager, Dominion
Virginia Power
DAVID HINDS, GE-Hitachi
DAVID R. LEWIS, Pillsbury Winthrop Shaw Pittman
JAMES MARRONE, Senior Seismologist/Geophysicist,
Manager of Seismology and Geophysics, Bechtel
Corporation
MARK MITCHELL, Vice President, Generation
Construction, Dominion Virginia Power
LUBEN TODOROVSKI, Principal Engineer, Civil
Engineering, GE Hitachi Nuclear Energy
JOHN WADDILL, Dominion Consulting Engineer

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P R O C E E D I N G S

9:01 a.m.

1
2
3 CHAIRMAN SVINICKI: I call the hearing to
4 order.

5 Good morning everyone. I have to have a
6 little bit more active today than I've had in these in
7 the past. But, I'm going to charge in. I've had
8 expert people to observe.

9 So, I want to welcome Dominion Virginia
10 Power, the NRC staff, members of the public in the
11 room with us and those who are tuning in remotely on
12 the Internet.

13 The Commission convenes today to conduct
14 an evidentiary hearing on Dominion Virginia Power's
15 application for a combined license to construct and
16 operate a new nuclear power unit at a site in Louisa
17 County, Virginia.

18 This hearing is required under Section
19 189a of the Atomic Energy Act of 1954 as Amended.

20 The Commission also will be reviewing the
21 adequacy of the NRC staff's Environmental Impact
22 Analysis under the National Environmental Policy Act
23 of 1969, also referred to as NEPA.

24 The general order of this hearing is as
25 follows, first, I will address procedural matters

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1 associated with the swearing in of witnesses and the
2 admission into the record of the parties exhibits.

3 Dominion and the NRC staff will then
4 provide testimony in witness panels that provide an
5 overview of the application as well as address safety
6 and environmental issues associated with its review
7 with Commission questions following each panel.

8 The Commission expects to issue a decision
9 after the hearing promptly with due regard to the
10 complexity of the issues after it makes the following
11 necessary findings.

12 On the safety side, the Commission will
13 determine, one, whether the applicable standards and
14 requirements of the Atomic Energy Act and the
15 Commission's regulations, specifically those in 10 CFR
16 Section 52.97, have been met.

17 Two, whether any required notifications to
18 other agencies or bodies have been duly made.

19 Three, whether there is reasonable
20 assurance that the facility will be constructed and
21 will operate in conformity with license, the
22 provisions of the Atomic Energy Act and the NRC's
23 regulations.

24 Four, whether the applicant is technically
25 and financially qualified to engage in the activities

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1 authorized.

2 And, five, whether issuance of the license
3 would be inimical to the common defense and security
4 or to the health and safety of the public.

5 On the environmental side, 10 CFR Section
6 51.107a, the Commission will, one, determine whether
7 the requirements of the National Environmental Policy
8 Act Section 102.2a, c, and e and the applicable
9 regulations in 10 CFR Part 51 have been met.

10 Two, independently consider the final
11 balance among the conflicting factors contained in the
12 record of the proceeding with a view to determining
13 the appropriate action to be taken.

14 Three, determine, after weighing the
15 environmental, economic, technical and other benefits
16 against environmental and other costs and considering
17 reasonable alternatives, whether the combined license
18 should, on the basis of the environmental review, be
19 issued, denied or appropriately conditioned.

20 And, four, determine whether the NEPA
21 review conducted by the NRC staff has been adequate.

22 This meeting is open to the public and we
23 do not anticipate the need to close the meeting to
24 discuss nonpublic information.

25 If a party believes that the response to

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1 a question may require a reference to nonpublic
2 information, then that party should answer the
3 question to the extent practicable with information in
4 the publically available record and file in a
5 nonpublic response promptly after the hearing on the
6 nonpublic docket.

7 At this point, I would like to ask my
8 fellow Commissioners whether they have any opening
9 remarks.

10 Commissioner Baran?

11 COMMISSION BARAN: Thank you, Chairman.

12 I just want to join you in welcoming
13 everyone and thanking the witnesses from the staff and
14 from Dominion for all of the work that led to today.

15 This is the sixth uncontested hearing
16 we've had during my time on the Commission. I think
17 that's true for Commissioner Burns, too.

18 Second one involving the ESBWR reactor
19 design.

20 But, it's my first hearing where the
21 applicant has an early site permit, so that's a little
22 different.

23 I'm looking forward to hearing everyone's
24 presentations and the Q&A.

25 Thanks.

1 CHAIRMAN SVINICKI: Thank you.

2 Okay. We will now proceed with the
3 swearing in of witnesses beginning with Dominion.
4 Counsel, please introduce yourself.

5 MR. LEWIS: My name is David Lewis, I'm
6 with the law firm Pillsbury Winthrop Shaw Pittman, and
7 I have the privilege of representing Virginia Electric
8 and Power Company.

9 CHAIRMAN SVINICKI: Thank you.

10 Would you please read the names of
11 Dominion's witnesses and each witness should stand as
12 her or his name is read.

13 MR. LEWIS: Yes, Mark D. Mitchell, Mark A.
14 Giles, Joseph D. Hegner, Regina A. Borsh, John
15 Waddill, Keith J. Miller, Louis T. Banks, James E.
16 Marrone, Luben I. Todorovski.

17 CHAIRMAN SVINICKI: Okay, thank you.

18 I would now ask the witnesses to please
19 raise their right hands while I read the oath.

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

23 (CHORUS OF I DO'S)

24 CHAIRMAN SVINICKI: Are there any
25 witnesses who did not take the oath?

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1 (NO RESPONSE)

2 CHAIRMAN SVINICKI: Hearing none, all of
3 you then have taken the oath.

4 Are there any objections to including the
5 witness list as part of the record?

6 MS. CARPENTIER: There are not.

7 CHAIRMAN SVINICKI: In the absence of
8 objections, the witness list is admitted into the
9 record.

10 Next, we will turn to Dominion's exhibits.
11 Counsel, are there any changes to your exhibits list?

12 MR. LEWIS: No, there are not.

13 CHAIRMAN SVINICKI: Would you please read
14 the range of numbers of the exhibits to be admitted?

15 MR. LEWIS: Yes, Dominion's exhibits are
16 numbered DVP001R and DVP002 through DVP014.

17 CHAIRMAN SVINICKI: Is there a motion to
18 admit the exhibits into the record?

19 MR. LEWIS: Yes, so moved.

20 CHAIRMAN SVINICKI: Are there any
21 objections to the admission of the exhibits and the
22 exhibit list as part of the record?

23 MS. CARPENTIER: There are not.

24 CHAIRMAN SVINICKI: In the absence of
25 objections, the exhibits and exhibit list are admitted

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1 into the record.

2 Thank you, the witnesses may be seated.

3 We will now turn to the presentation of
4 the staff witnesses. Counsel, please introduce
5 yourself.

6 MS. CARPENTIER: Thank you.

7 My name is Marcia Carpentier. I'm with
8 the NRC Office of General Counsel and I am Counsel for
9 the NRC staff.

10 We have some changes to our witness list
11 and I was wondering how you would like me to proceed
12 with those? Should I mention the additions first?

13 CHAIRMAN SVINICKI: Maybe that would be
14 helpful because that would highlight them. But,
15 again, you will be asked to read the entire list of
16 names of the staff's witnesses.

17 MS. CARPENTIER: Yes, yes, thank you.

18 Additions are Emil Tabakov and Richard
19 Turttil of the Office of Nuclear Reactor Regulation and
20 Richard Clement, Joe Ashcraft, Nilesh Chokshi and
21 Lauren Kent from NRO.

22 CHAIRMAN SVINICKI: Okay. And, I would
23 ask those witnesses to stand. Thank you.

24 And, would you continue with the remainder
25 of the list?

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1 MS. CARPENTIER: Thank you.

2 Frank Akstulewicz, Aaron Armstrong,
3 Merritt Baker, Dan Barss, Laurel Bauer, Anna Bradford,
4 Robert Caldwell, Andy Campbell, Mark Caruso, Manas
5 Chakravorty, Nan Chien, Christopher Cook, David
6 Curtis, Antonio Dias, Joe Donoghue, James Downs,
7 Michael Dusaniwskyi, Michael Eudy, Robert Fitzpatrick,
8 Joseph Giacinto, James Gilmer, Vladimir Graizer,
9 Michelle Hart, Brad Harvey, David Heeszal, John
10 Honcharik, James Kellum, Rebecca Karas, Chang Li,
11 Timothy Lupold, Matthew Mitchell, Lynn Mrowca,
12 Ruthanne Murray, Bruce Musico, Jinsuo Nie, James
13 O'Driscoll, Vonna Ordaz, Sunwoo Park, Raju Patel, Judy
14 Petrucelli, Thomas Pham, Kevin Quinlan, Sheila Ray,
15 Eduardo Sastre, James Shea, Alice Stieve, Angelo
16 Stubbs, Edward Stutzcage, Allbert Tardiff, Aaron
17 Thomas, Christopher Van Wert, George Wang, Weijun
18 Wang, Stephen Williams, Yuken Wong, Zuhan Xi, Jim Xu,
19 Jack Cushing, Jennifer Davis, Peyton Doub, Tamsen
20 Dozier, Kenneth Erwin, Stacey Imboden, Andrew Kugler,
21 Phil Meyer, Dan Mussatti, Donald Palmrose, and
22 Mallecia Sutton.

23 CHAIRMAN SVINICKI: Thank you.

24 And, if I could ask if any of the
25 witnesses are entirely blocked from view by this port

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1 post, could you please just step the right or left so
2 that you could see me. Thank you.

3 Please raise your right hand while I read
4 the oath.

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

8 (CHORUS OF I DO'S)

9 CHAIRMAN SVINICKI: Are there any
10 witnesses who did not take the oath?

11 Okay, you may be seated.

12 Are there any objections to including the
13 witness list as part of the record?

14 MR. LEWIS: No objection.

15 CHAIRMAN SVINICKI: In the absence of
16 objections, the witness list is admitted into the
17 record.

18 We will now turn to the staff's exhibits.
19 Counsel, are there any changes to your exhibit list?

20 MS. CARPENTIER: There are not.

21 CHAIRMAN SVINICKI: Please read the range
22 of numbers of the exhibits to be admitted.

23 MS. CARPENTIER: NRC001 through NRC012.

24 CHAIRMAN SVINICKI: Is there a motion to
25 admit the exhibits into the record?

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1 MS. CARPENTIER: There is.

2 CHAIRMAN SVINICKI: Are there any
3 objections to the admission of the exhibits and the
4 exhibit list into the record?

5 MR. LEWIS: No objection.

6 CHAIRMAN SVINICKI: In the absence of
7 objection, the exhibits and exhibit list are admitted
8 into the record.

9 Okay, thank you for those procedural
10 matters.

11 We will now turn to the first panel. For
12 our first presentation, Dominion will provide an
13 overview of its application.

14 After each overview panel, we will have a
15 round of questions from the Commissioners.

16 For the two subsequent presentations, the
17 safety panel and the environmental panel, first,
18 Dominion and then the staff will testify followed by
19 an opportunity for Commission questions of both
20 parties.

21 The Commissioners will have an opportunity
22 to bank their time as they see fit to focus on
23 particular questions and we will rotate the order of
24 questioning throughout the day.

25 I remind the witnesses that they are under

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1 oath. And, if an individual needs to come to the
2 podium to respond to a question or otherwise speak,
3 please approach the podium and wait to be addressed
4 and if you have not previously been sworn in, please
5 wait to be sworn in.

6 Thank you.

7 I would begin by asking the panelists to
8 please introduce themselves again.

9 MR. MITCHELL: Good morning, Chairman
10 Svinicki, Commissioner Burns and Commissioner Baran.
11 My name is Mark Mitchell, I am Vice President,
12 Generation Construction for Dominion Virginia Power.

13 CHAIRMAN SVINICKI: Thank you.

14 MR. GILES: Mark Giles, Dominion. I'm the
15 Director for Technical Support.

16 MR. HEGNER: Joe Hegner, Licensing Manager
17 for Dominion.

18 CHAIRMAN SVINICKI: Thank you.

19 Please proceed with your presentation.

20 MR. MITCHELL: Thank you.

21 Again, my name is Mark Mitchell and I am
22 Vice President, Generation Construction for Dominion
23 Virginia Power and the Executive Officer responsible
24 for the company's North Anna 3 Unit project.

25 I am very pleased to appear before you

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1 today in this hearing on the issuance of a combined
2 construction permit and operation license for North
3 Anna Unit 3.

4 This hearing is the culmination of
5 considerable effort by both Dominion and the NRC staff
6 to thoroughly analyze, demonstrate and document the
7 proposed unit is protected for the public health and
8 safety consistent with National Environmental Policy
9 Act and complaint with the NRC Safety and
10 Environmental regulations.

11 Let me start with a few words about
12 Dominion Virginia Power, which is the applicant for
13 the combined license.

14 Slide two, please?

15 Dominion Virginia Power whose legal name
16 is Virginia Electric and Power Company is a regulated
17 public utility that currently serves approximately 2.6
18 million electric customers located in Virginia and
19 North Carolina.

20 The company supply side portfolio consists
21 of approximately 21,665 megawatts of generation
22 capacity and its operating revenues in 2016 were
23 approximately \$7.6 billion.

24 Dominion Virginia Power is a subsidiary of
25 Dominion Resources, Incorporated, or Dominion.

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1 Dominion is one of the nation's largest
2 producers and transporters of energy. Dominion's
3 strategy is to be the leading provider of electricity,
4 natural gas and related services to customers
5 primarily in the Eastern and Rocky Mountain regions of
6 the U.S.

7 Dominion's portfolio of assets at the end
8 of 2016 includes approximately 26,400 megawatts of
9 generating capacity, 6,600 miles of electric
10 transmission lines, 57,600 miles of electric
11 distribution lines, 14,900 miles of natural gas
12 transmission gathering and storage pipeline and 51,300
13 miles of gas distribution pipeline.

14 Dominion serves over 6 million utility and
15 retail energy customers and operates one of the
16 nation's largest underground natural gas storage
17 system with approximately 1 trillion cubic feet of
18 storage space.

19 Dominion has approximately \$71 billion in
20 total assets and the operating revenue in 2016 of
21 nearly \$12 billion.

22 Dominion Virginia Power has approximately
23 50 years of experience with construction and the
24 operation of nuclear power plants. It currently
25 operates two baseload units at the Surrey Power

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1 Station and two baseload units at the North Anna Power
2 Station.

3 In addition, it's sister company, Dominion
4 Nuclear Connecticut operates two units at the
5 Millstone Power Station in Connecticut. And, until
6 recently, another sister company operated the Kewaunee
7 Power Station in Wisconsin.

8 The nuclear operation at these units is
9 supported by a strong, cohesive corporate nuclear
10 organization.

11 Dominion's nuclear performance has been
12 exemplary. As an example, the U.S. nuclear industry's
13 three-year capacity factor averaged 91.3 percent from
14 2012 through 2015.

15 During the same period, our nuclear fleet
16 performance was 92.9 percent. In 2016, the fleet
17 capacity factor was 93.3 percent.

18 As indicated, Dominion has consistently
19 exceeded the industry average capacity factor.

20 In short, Dominion Virginia Power is well
21 qualified to construct and operate North Anna Unit 3.

22 Slide five, please?

23 In its 2016 integrated resource plan,
24 Dominion Virginia Power projects that its annual
25 summer-adjusted capacity requirements will increase by

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1 4,457 megawatts over the next 15 years, while its
2 annual-adjusted energy requirements will increase by
3 about 20,700 gigawatt hours.

4 As shown on slide five, there is a
5 substantial capacity gap that needs to be filled.
6 Issuance of the COL for North Anna Unit 3 will provide
7 a very valuable option for meeting this need.

8 The landscape for electric generation is
9 changing rapidly. The U.S. Environmental Protection
10 Agency's Clean Power Plan, if upheld following pending
11 court challenges, would require the Commonwealth to
12 reduce its carbon emissions significantly.

13 The costly clean power plant is currently
14 under judicial review. Dominion Virginia Power has
15 not yet selected a preferred means of compliance, but
16 instead, has included a number of options in its
17 current integrated resource plan including one option
18 under which North Anna 3 would be in service by the
19 end of 2028.

20 Issuance of the COL provides great
21 certainty regarding the availability of this option
22 and will allow Dominion Virginia Power to move forward
23 expeditiously if and when a decision is made.

24 Even with the exact future of the clean
25 power plan undetermined at present, Dominion Virginia

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1 Power believes that future regulation will require it
2 to address carbon and carbon emissions in some form
3 beyond what is required today.

4 Therefore, it is critical to preserve all
5 options available that will help to ensure that
6 Dominion Virginia Power, its customers and the
7 Commonwealth of Virginia can effectively transition to
8 a low carbon future while maintaining reliability and
9 protecting against price volatility and over reliance
10 on any single fuel source.

11 In conclusion, Dominion Virginia Power's
12 continued development of North Anna 3, will help to
13 ensure that the supply side resource option remains
14 available to its customers.

15 Nuclear power offers proven operational
16 economic and environmental benefits and this project
17 is an important resource for our customers in terms of
18 reliability and fuel diversity and as an option to
19 comply with the clean power plan or other initiatives
20 to reduce carbon emissions.

21 Nuclear units provide 24 by 7 emission-
22 free dispatchable generation and North Anna 3 will
23 enhance fuel diversity within Dominion Virginia
24 Power's generation portfolio which will, in turn,
25 promote fuel price stability for customers.

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1 If constructed, the ESBWR unit would
2 provide our customers with an additional 1,500
3 megawatts of nuclear generated electricity.

4 I will now turn the presentation over the
5 Mark Giles who is Director, Nuclear Project Technical
6 Support for the North Anna 3 Project and Joseph Hegner
7 who is the Licensing Manager for the North Anna 3
8 project who will provide an overview of the proposed
9 unit and its licensing.

10 MR. GILES: Thank you, Mark.

11 And, slide six, please?

12 Good morning, Chairman Svinicki and
13 Commissioners Burns and Baran. My name is Mark Giles.
14 I am the Director and Nuclear Project Technical
15 Support and have overall responsibility for the North
16 Anna Unit 3 combined license application, associated
17 design engineering and related state and federal
18 permits and approvals.

19 Dominion's North Anna site is located in
20 Louisa County, Virginia, approximately 40 miles north,
21 northwest of Richmond.

22 This is a very good location for the new
23 unit as the site is positioned between heavy load
24 centers in northern Virginia and the surrounding
25 Richmond and Charlottesville areas.

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1 The site is about 1,043 acres and was
2 originally planned for four units with Units 1 and 2
3 constructed in the 1970s, followed by commercial
4 operation in 1978 and 1980.

5 Slide seven, please?

6 This is an aerial photograph of the
7 existing site with the Unit 3 rendering shown on the
8 site to approximate scale. Unit 3 is in light blue
9 located generally west of Units 1 and 2 on the right,
10 with a cooling tower shown west of Unit 3.

11 Currently, Units 1 and 2 are in operation
12 with both units having gone through license renewal.

13 With the selected GEH ESBWR technology,
14 Unit 3 would occupy about 133 acres within the
15 existing North Anna site. The site also contains an
16 independent spent fuel storage installation. That
17 license is currently in the NRC license renewal
18 process.

19 Lake Anna, a manmade lake on property
20 owned by Dominion provides cooling water for Units 1
21 and 2 and the lake with provide non-safety related
22 make up for Unit 3, but is not needed for any safety
23 related cooling in Unit 3.

24 The lake is approximately 17 miles long
25 with 200 miles of shoreline.

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1 Slide eight, please?

2 Dominion selected the GEH Economic
3 Simplified Boiling Water Reactor, or ESBWR design, for
4 Unit 3. This is a standardized design which the NRC
5 certified by rule effective in November 2014.

6 This design was one of two advanced
7 reactor designs that were developed as part of the
8 U.S. Department of Energy's Nuclear Power 2010
9 Program.

10 The ESBWR is a Generation III+ boiling
11 water reactor that produces 4,500 megawatts of thermal
12 energy and approximately 1,500 megawatts of
13 electricity.

14 The ESBWR design incorporates passive
15 safety and natural circulation such that no AC power
16 nor operator action is required for at least 72 hours
17 following a design basis event.

18 It has a robust seismic design envelop and
19 a very low core frequency.

20 Now, I would like to turn the presentation
21 over to Joe Hegner for a discussion of the COLA.

22 MR. HEGNER: Chairman, Commissioners, good
23 morning.

24 In my presentation, I will describe the
25 North Anna 3 COLA, highlight some differences from the

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1 DCD, how we standardized with the reference COLA,
2 describe how we took advantage of our early site
3 permit and, lastly, tee up the topics to be addressed
4 during the safety and environmental panels that
5 follow.

6 Slide nine, please?

7 For more than a decade, Dominion has
8 exercised the Part 52 process and found it to be both
9 robust and flexible.

10 We submitted a COLA for an ESBWR at the
11 North Anna site designated as Unit 3 in November of
12 2007. The North Anna 3 COLA referenced in early site
13 permit application we had previously submitted in
14 September of 2003.

15 That early site permit application used a
16 planned parameter envelop approach.

17 The PPE served as a surrogate for a
18 reactor technology since, at the time, Dominion had
19 not made a technology decision.

20 The NRC issued the early site permit in
21 November of 2007.

22 We revised the COLA on two occasions to
23 change technologies. Originally, the COLA referenced
24 the ESBWR. Dominion changed to the US-APWR in 2010
25 and reverted back to the ESBWR in 2013.

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1 Over much of the COLA's review of the
2 ESBWR was undergoing an NRC review in parallel until
3 the design was certified in 2014.

4 We also worked closely with DTE Electric
5 Company who had also selected the ESBWR to implement
6 the design centered review approach called for by the
7 NRC to maximize standardization.

8 Slide ten, please?

9 Part 52 has appropriately been described
10 as a process regulation. The safety and environmental
11 requirements that we are required to meet under Part
12 52 are the same safety and environmental requirements
13 a Part 50 applicant must meet.

14 There were numerous guidance documents we
15 followed. Two key documents that helped define the
16 safety and environmental requirements were NUREG-0800
17 and NUREG-1555.

18 The process guidance for Part 52 is
19 provided primarily through Regulatory Guide 1.206 for
20 COLA content and by Regulatory Issue Summary 2006-06
21 that describe the one issue, one review, on resolution
22 philosophy that serves as the foundation for the
23 design centered review approach.

24 Slide 11, please?

25 Because our goal was to maximize

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1 standardization, owning a few departures and or
2 exemptions were identified when we found it necessary
3 to deviate from DCD content.

4 The first departure and exemption listed
5 on the table involving seismic analyses had the
6 broadest impact. It was necessary because we used the
7 latest available seismic guidance information and
8 models.

9 As a result, we exceeded the CSDRS, that
10 is the Certified Seismic Design Response Spectra in
11 the DCD at several frequencies.

12 That analysis and how we dealt with the
13 exceedances will be discussed in the safety panel.

14 The other departures and exemptions were
15 caused by a variety of circumstances.

16 For example, there are two related to the
17 North Anna switchyard. One, because the Unit 3
18 transformer yard was too small to include all the
19 components described in the DCD for that location.

20 So, we added an additional switchyard we
21 called the intermediate switchyard.

22 The other switchyard related departure was
23 identified because the existing North Anna switchyard
24 pre-dates current lighting and surge protection
25 guidance by several decades.

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1 In the departure, we demonstrated
2 equivalent level of protection.

3 We have one departure and exemption
4 involving RAD waste storage and material control and
5 accounting. They are identical to the ones identified
6 by the referenced COLA, Fermi 3.

7 We revised the liquid RAD waste discharge
8 piping location allowing it to discharge directly to
9 the environment at the Unit 3 discharge structure,
10 thus, simplifying the design and construction of the
11 cooling water blow down line.

12 Finally, we identified a departure and
13 exemption for hurricane missile speeds because we used
14 the latest NRC guidance, Regulatory Guide 1.221 issued
15 after the DCD had been submitted.

16 Slide 12?

17 The early site permit we received in 2007
18 proved to be very beneficial. It enabled Dominion to
19 determine potential suitability of the North Anna
20 site.

21 It provided for the early resolution of
22 siting issues such as water use.

23 It allowed us to keep options open while
24 we evaluated market conditions and defer a technology
25 decision until justified by the business case.

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1 The early site permit application was
2 based on a plant parameter envelop that included
3 several Gen III+ and Gen IV technologies, both large
4 and small reactors.

5 To use the early site permit in support of
6 the COLA, we needed to identify differences, variances
7 from ESP content. The variances were driven by the
8 technology decision, by new information and, in a few
9 instances, corrections.

10 Identifying the variances allowed the NRC
11 staff to be more efficient and review only those
12 aspects of the early site permit or early site permit
13 application content that had changed since the NRC had
14 approved the early site permit in 2007.

15 With the exception of the seismic variance
16 which resulted in a major revision to FSAR Chapter 2
17 content, the remaining variances listed on the slide
18 were relatively minor.

19 They included a 3-inch rise in lake level,
20 conforming the source term to the ESBWR, changes in
21 dose parameters based on new data as a result of
22 changes in receptor locations and dispersion
23 estimates.

24 Changes in groundwater travel parameters
25 based on new boring data. And, a change in tornado

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1 characteristics based on using the latest NRC
2 guidance.

3 Slide 13, please?

4 Most Fukushima Near Term Task Force
5 recommendations were addressed and resolved in the
6 ESBWR design certification.

7 COL applicants were required to address
8 three Near Term Task Force recommendations.

9 As you can see on the slide, they were the
10 development of mitigating strategies for beyond design
11 basis external events, training associated with spent
12 fuel pool water level instrumentation power supplies
13 and an assessment of emergency planning, staffing and
14 communications prior to fuel load.

15 The license conditions we are proposed for
16 North Anna 3 are essentially those for Fermi 3.

17 Slide 14?

18 I'll now tee up the safety and
19 environmental panels.

20 First, safety. This simple graphic is
21 provided to assist you in visualizing the discussion
22 on seismic analyses that the safety panel will
23 present.

24 As you know, the site specific seismic
25 hazard at the North Anna site exceeded that of the

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1 seismic hazard assumed in the DCD, the CSDRS.

2 Current analysis methodologies use a
3 probabilistic approach. That approach considered
4 seismic sources within 200 miles of the North Anna
5 site and a number of sources beyond 200 miles.

6 The energy contribution from those
7 sources, the assumed frequency of occurrence and how
8 the seismic energy propagates through the earth to the
9 site and then up to the structures was analyzed.

10 Then, an analysis of those structures,
11 certain components and the interactions between major
12 structures was performed.

13 We concluded that the DCD design was
14 acceptable with only minor changes.

15 On the next slide, I'll highlight some
16 elements of our seismic analysis.

17 Slide 15?

18 Dominion used the latest information and
19 guidance to perform the seismic analyses. We used the
20 new CEUS-SSC model, that is, the Central Eastern
21 United States Seismic Source Characterization model.

22 We updated the model's catalogue through
23 December 2011 to include the Mineral, Virginia
24 earthquake.

25 We used the latest EPRI ground motion

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1 model. We used the methodology specified in the DCD
2 to perform the seismic structural analysis.

3 We followed the latest regulatory
4 guidance.

5 The safety panel will discuss this and is
6 prepared to answer your questions.

7 Slide 16?

8 Now, turning to the environmental panel.
9 Most environmental issues had been identified and were
10 evaluated in the early site permit licensing action.

11 There were no novel issues identified
12 during the COLA Environmental Review, but we did
13 compare the ESBWR technology to the plant parameter
14 envelop that had been established by the early site
15 permit and took the variances noted previously.

16 A few topics were deferred to the COLA
17 such as need for power and energy alternatives.

18 In addition to the deferred items, both
19 Dominion and the NRC monitored and identified new
20 information during the near decade long course of the
21 review to determine whether any new information was
22 significant.

23 The environmental panel will cover this in
24 their presentation.

25 Slide 17?

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1 Lastly, the COLA lists a number of
2 environmental permits from federal, state and local
3 agencies that Dominion must have at the appropriate
4 time for the North Anna 3 project to proceed.

5 Dominion currently holds the permits
6 needed to support COL issuance. They are the 401
7 permits related to water use and the Coastal Zone
8 Management Act consistency determination.

9 Finally, required consultations among the
10 various federal agencies have been completed.

11 A final comment or two, both Dominion and
12 the NRC staff have expended thousands of man hours
13 over nearly a decade to be in the position to present
14 the results of our efforts to you today.

15 We want to acknowledge the
16 professionalism, hard work and excellent
17 communications we've experienced over that time with
18 the NRC staff that has led us to this moment.

19 That concludes my presentation and we look
20 forward to answering your questions.

21 CHAIRMAN SVINICKI: Thank you for those
22 presentations.

23 We'll begin the question period for this
24 panel with my questions.

25 I think this question is most

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1 appropriately directed to Mr. Hegner. Your slide 11
2 talks about maximizing standardization, but it gives
3 a description of departures and exemptions and maybe,
4 to a certain extent, variances on slide 12 as well.

5 Could you describe at a high level how you
6 strategically balanced the benefits of standardization
7 and the minimization of departures and exemptions
8 versus those ones that you ultimately found necessary
9 to pursue?

10 Well, we worked, as part of a design
11 centered working group with DTE Energy. And, our
12 focus, like theirs, was to maximize standardization.

13 We would identify potential opportunities
14 to perhaps improve design, engineers like to do that.

15 But, our overriding driver was the desire
16 to maintain standardization. We believe there's a
17 strong benefit in being standardized.

18 CHAIRMAN SVINICKI: So, would it be fair
19 to characterize that the ultimate set of departures
20 and exemptions that you arrived at were those that you
21 felt were necessary? And, there may have been other
22 issues that you found other ways to address without
23 pursuing departures and exemptions?

24 MR. HEGNER: These were departures and
25 exemptions that were necessary for us to take and we

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1 did our best to take no more than was necessary.

2 CHAIRMAN SVINICKI: Thank you.

3 I think that's my only question for this
4 panel.

5 Commissioner Baran?

6 COMMISSIONER BARAN: Thank you.

7 Well, thank you for your presentations.

8 In terms of timing, if you receive a
9 combined license, do you have a sense of when Dominion
10 would make a decision about whether to construct Unit
11 3?

12 MR. MITCHELL: We consider multiple
13 factors every year in our integrated resource plans.
14 At the moment, the Clean Power Plan is a bit
15 uncertain, as I mentioned in my testimony.

16 So, you know, we're continuing to evaluate
17 it and we're just seeing how that plays out with
18 options that can go forward.

19 You know, I mentioned late 2028 was when
20 the unit could be available for service and that's
21 really based on how long it takes to do it.

22 You know, we look at a cycle to get there
23 of about -- I'll say about four years to advance
24 engineering a bit more. Then we have to go through a
25 state approval process.

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1 Some equipment lead times which is about
2 a three to four year period.

3 And, then, we look at about seven years
4 for actual construction and commissioning of the unit.

5 So, that gets us to that earliest time
6 frame.

7 COMMISSIONER BARAN: And so, there may be
8 a period there where, if you receive a COL, you'd be
9 a COL holder, but not actively in construction for
10 that -- for maybe even prior to the time you would
11 make a decision about whether you were going to
12 construct the plant and the time frame for that.

13 For that period, would you expect to
14 remain active with the ESBWR Design Center as the
15 design is further refined?

16 MR. MITCHELL: I'll answer part of that
17 and defer the other part to Joe.

18 Yes, I'm mean, there could well be a
19 period where we're just holding the COL and not
20 actively moving forward with engineering or other
21 activities on North Anna.

22 MR. HEGNER: But, in parallel, we will be
23 now, or at that point, a COL license holder and
24 responsible for all the obligations and requirements
25 that ensure. And, Dominion does have already the

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1 resources, the people with appropriate talent set,
2 processes and procedures and information and databases
3 that would allow us to function as a licensee during
4 that interim period and meet all of our obligations.

5 COMMISSIONER BARAN: And, would you
6 anticipate during that period that you would be
7 submitting license amendment requests as there were
8 developments on the design or would you expect that
9 you'd wait until there was a decision on construction
10 to proceed with any license amendment requests?

11 MR. HEGNER: The latter. We do not intend
12 to submit license amendments immediately following the
13 issuance of a license.

14 COMMISSIONER BARAN: Okay. In several of
15 the responses to the pre-hearing questions, Dominion
16 discussed required commitments in the final safety
17 analysis report, or FSAR.

18 Can you briefly talk about the process
19 Dominion would use to track FSAR commitments prior,
20 during and after construction?

21 MR. HEGNER: I'll answer that in two
22 parts. We have -- we use the Dominion nuclear fleet
23 commitment tracking system and specific commitments.
24 That is, a specific action to occur at a specific
25 milestone.

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1 We would employ the CTS just like the rest
2 of the fleet does. And, we're very confident that
3 that system works well. We've used it for a long
4 time.

5 We view the application, especially the
6 FSAR as one large commitment. Everything we said in
7 there, we have to abide by.

8 So, our plan was to essentially parse the
9 entire application into the various pieces, parts,
10 down to paragraphs and sentences and distribute that
11 through the entire EPC organization so that each
12 individual who is working to advance the design or
13 develop a program would immediately see the guardrails
14 within which they had to be constrained as they
15 develop that design or develop that program.

16 And, if there was any need to deviate from
17 what was in the current licensing basis, we would
18 follow all approved regulatory process to make those
19 changes.

20 COMMISSIONER BARAN: Thank you.

21 CHAIRMAN SVINICKI: Thank you,
22 Commissioner.

23 Commissioner Burns?

24 COMMISSIONER BURNS: Yes, thank you.

25 And, thank you for the testimony you

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1 provided in the overview.

2 A couple of things I'd be interested in,
3 particularly when I reflect back on the hearing we had
4 on DTE because, as you both selected the ESBWR
5 technology, I realize there's been a little bit of
6 switching as to who's the reference COL with respect
7 to the --

8 Are there any implications should you be
9 grated the COL for Unit 3 and begin construction
10 before DTE constructs Fermi Unit 3, and particularly,
11 I think I'm interested, if this situation were to
12 occur, would you -- would North Anna 3, in effect,
13 become the defacto reference COL at that point in
14 time? How do you see that?

15 MR. HEGNER: I would say yes, we would
16 become the defacto reference COL because I think
17 everyone envisioned the reference COL to be the first.

18 And, so, I think if we were the first that
19 moved into construction, it would just be natural for
20 us to be viewed that way.

21 COMMISSIONER BURNS: Okay. And, I
22 presume, but you can tell me, is there a plan to
23 continue sharing going forward with DTE with respect
24 to detailed design information or developments?

25 For example, if you did get out ahead or,

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1 for example.

2 MR. HEGNER: Yes, we found great benefit
3 in working with DTE up to this point and would expect
4 to continue that relationship. There is certainly
5 benefits from collaborating in a design center.

6 COMMISSIONER BURNS: Okay. And, last, and
7 this is really perhaps more of a general reflection
8 and I -- on the Part 52 process. And, I recognize the
9 question involved a little bit of Monday morning
10 quarterbacking.

11 Obviously, when Part 52 was promulgated
12 over 25 years ago, it's going on almost 30 years ago,
13 the three approaches or the three, and if you will,
14 licensing type approvals in the design certification
15 rules for approval of a technology or a design in
16 general.

17 And, then, with respect to licensing at a
18 particular site, you had both the option of an early
19 site permit and then the combined license.

20 In some respects, when I reflect on the
21 approach you've taken, and you're not the only one,
22 that Southern with respect to Vogtle went early site
23 permit and then went to the COL.

24 I think what strikes me as a little bit
25 different for Dominion is you actually, as you -- as

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1 testimony described, switched out the particular
2 technology, reactor technology to be using.

3 So, you reflected a little bit, Mr.
4 Hegner, on some of the benefits or what you were able
5 to do to leverage the ESP.

6 But, I guess, my general question is, and,
7 I recognize this is a little bit speculative, but does
8 the ESP provide you, I think, significant benefits
9 versus just going to a COL?

10 And, in some ways, my question is almost
11 like, if you had to do it over again, would you do it
12 that way? I know the ESP, in many ways in the early
13 2000s were really trying to test the process, move
14 through the process.

15 But, you know, in many ways, it was a
16 conceptual approach to have ESP in the initial Part
17 52. But, I'd just like any one of you to elaborate
18 more what you might see as benefits or disadvantages
19 of the ESP which might make you do it again if you had
20 the chance or not do it again.

21 MR. HEGNER: Absolutely, we would do an
22 early site permit application again. There were real
23 benefits by doing that first.

24 As I mentioned in the slides, going into
25 the early site permit application, we had a paradigm

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1 that the Lake Anna, which we had constructed, as Mr.
2 Giles described, was designed to provide cooling for
3 four units.

4 COMMISSIONER BURNS: Right.

5 MR. HEGNER: And, in fact, Units 3 and 4
6 were under construction and then we changed or made a
7 decision not to proceed.

8 That vision proceeded over time. And, as
9 we started with the early site permit application,
10 that was our going in view. That was the way the
11 world still was.

12 But, as we learned fairly quickly, the
13 world had changed views on water, the environment, the
14 community that was now surrounding the lake and living
15 there were different than what we recalled back in the
16 '70s.

17 And so, it became apparent to us very
18 quickly that we had to look at it differently. And,
19 as you know, we decided to take the new unit off the
20 lake, create a closed cooling water system and, in
21 fact, increased lake level 3 inches as a further
22 mitigation measure.

23 My point in all that is, we were very glad
24 that we identified that and realized that we were
25 looking at it perhaps through the wrong lense during

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1 the early site permit licensing action.

2 Had that occurred to us during the COLA,
3 I think it would have had much more of an adverse
4 impact that we would have had to deal with.

5 But, I am very pleased that we took that
6 opportunity to deal with it during the ESP.

7 The lesson learned I would suggest I think
8 has already been learned by the industry. The plant
9 parameter envelop that we proposed, it was pretty
10 broad. Almost everything except the kitchen sink.

11 More recent applicants, TVA, PSE&G, have
12 defined targeted PPEs, a set of small modular reactors
13 or the large light reactors.

14 And, that was one lesson learned, but were
15 we to do it again, we would better define that set of
16 new plants or potential technologies that we would
17 include within a PPE.

18 COMMISSIONER BURNS: Thanks, that was very
19 helpful. Thank you.

20 Thank you, Madam Chairman.

21 CHAIRMAN SVINICKI: Well, I thank the
22 panel again.

23 And, I would now ask the NRC staff
24 overview panelists to please take the seats here at
25 the table designated.

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1 As they take their seats, I will remark
2 that, in this panel, the staff will provide an
3 overview of its review of the application, including
4 the use of the design centered review approach for
5 ESBWR combined license applications and a summary of
6 their regulatory findings.

7 I remind the staff witnesses that they
8 remain under oath and the witnesses can and should
9 assume that the Commission is familiar with their pre-
10 hearing filings.

11 I'll ask the panel to begin by doing
12 introductions of the panelists.

13 Thank you.

14 MS. ORDAZ: Yes, I'm Vonna Ordaz, the
15 Acting Director for the Office of New Reactors.

16 MR. AKSTULEWICZ: I'm Frank Akstulewicz,
17 the Director for the Division of New Reactor Licensing
18 and the Office of New Reactors.

19 MS. BRADFORD: Anna Bradford, Deputy
20 Director of the Division of New Reactor Licensing in
21 the Office of New Reactors.

22 CHAIRMAN SVINICKI: Thank you and please
23 proceed.

24 MS. ORDAZ: Thank you.

25 Good morning, Chairman Svinicki and

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1 Commissioners.

2 Again, I'm Vonna Ordaz, the Acting
3 Director of the Office of New Reactors.

4 On behalf of the North Anna 3 review team,
5 we're pleased to address the Commission at this
6 mandatory hearing.

7 With me, as we've already introduced,
8 Frank Akstulewicz, Director of the Division of New
9 Reactor Licensing and, of course, Anna Bradford, the
10 Deputy Director of the Division of New Reactor
11 Licensing.

12 The team here today will present the
13 results of the staff's review of the Dominion Virginia
14 Power application for a combined license, or COL, for
15 North Anna 3 proposed for the existing North Anna site
16 in Louisa County, Virginia, approximately 40 miles
17 northwest of Richmond, Virginia.

18 There are two existing nuclear reactors in
19 operation at the North Anna site, as well as the
20 independent spent fuel storage installation.

21 North Anna 3 will be located adjacent to
22 and generally west of the North Anna units.

23 The staff's Supplemental Environmental
24 Impact Statement for the COL, which is referred to as
25 the COL SEIS, was issued in March 2010.

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1 The staff's COL Final Safety Evaluation
2 Report, or FSER, was completed in January of this
3 year.

4 These documents are the culmination of a
5 nine-year review effort by the staff and represent the
6 results of the coordinated effort of scientists,
7 engineers, attorneys and administrative professionals
8 for multiple offices within the Agency as well as the
9 efforts of other agencies and those of our
10 consultants.

11 Slide two, please?

12 On this panel, Mr. Akstulewicz and Ms.
13 Bradford will briefly describe the staff evaluation
14 for the North Anna 3 COLA. This will consist of an
15 overview of the safety and environmental reviews as
16 well as a summary of the staff's regulatory findings.

17 In November 2007, the staff docketed the
18 initial version of the application. Since then, the
19 staff has expended approximately 105,000 hours on the
20 safety and environmental reviews.

21 This effort has involved well over 100
22 engineers, scientists and technical specialists.

23 During this time, the staff conducted
24 approximately 100 public meetings and conference calls
25 in support of the North Anna 3 COL application review.

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1 The applicant responded to approximately
2 820 staff questions, of which about 800 were
3 associated with the safety review and about 20 with
4 the COL environmental review.

5 In addition, the staff considered almost
6 1,600 comments on the Draft Supplemental Environmental
7 Impact Statement.

8 Contractors working in collaboration with
9 the staff devoted over 20,000 hours to support the
10 Supplemental Environmental and Safety Reviews.

11 The review of this application was a very
12 thorough effort and focused on safety and protecting
13 the environment.

14 Within the NRC, the offices that
15 contributed to the review include the Office of
16 Nuclear Security and Incident Response which looked at
17 the emergency preparedness and security areas.

18 The Office of Nuclear Reactor Regulation
19 which evaluated financial qualification aspects of the
20 application.

21 And, the Office of Nuclear Material Safety
22 and Safeguards which supported the reviews for
23 licenses necessary under Part 30 for byproduct
24 material, Part 40 for source material and Part 70 for
25 special nuclear material.

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1 The Office of the General Counsel reviewed
2 the SER and COL SEIS.

3 Finally, the Advisory Committee on Reactor
4 Safeguards reviewed and reported on the safety aspects
5 of the North Anna 3 application in accordance with the
6 regulatory requirements of 10 CFR 51.87.

7 In addition, the NRC Region II Office
8 supported environmental meetings in the community near
9 the North Anna 3 site.

10 Slide three, please?

11 On November 27th, 2007, representatives of
12 Dominion delivered an application for a COL to
13 construct and operate the single unit North Anna 3 on
14 the current site for North Anna Units 1 and 2.

15 The North Anna 3 site is located on the
16 shore of Lake Anna.

17 Dominion would be licensed to construct
18 and operate the North Anna 3 unit if its COL is
19 approved.

20 Slide four, please?

21 The North Anna 3 COL application
22 incorporates by reference the Economic Simplified
23 Boiling Water Reactor, or ESBWR, Design Certification
24 Document, Revision 10.

25 The ESBWR design was certified by rule

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1 October 15th, 2014 which is contained in 10 CFR Part
2 51, Appendix E.

3 Based on the finality that NRC regulations
4 afford to a certified design, the scope of the staff's
5 COL technical review did not include items that were
6 resolved within the scope of the certified design.

7 Instead, the COL review focused on plant
8 specific aspects of the application, such as
9 operational programs, site specific design
10 considerations, COL information items, variances from
11 the ESP and exemptions and departures from the ESBWR
12 certified design.

13 North Anna 3 was reviewed following the
14 design center review approach. The Commission had
15 previously issued a license for an ESBWR for Fermi 3
16 on May 1st, 2015.

17 The staff presented its review of the
18 Fermi 3 COL application to the Commission at a
19 mandatory hearing on February 4th, 2015.

20 We look forward to responding to your
21 questions at this hearing.

22 I would now like to turn the presentation
23 over to Mr. Frank Akstulewicz.

24 MR. AKSTULEWICZ: Thank you, Vonna.

25 Good morning, Chairman and Commissioners.

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1 Today I will discuss the scope of the
2 staff's safety review and the findings of the Advisory
3 Committee on Reactor Safeguard, or ACRS.

4 Slide five, please?

5 In accordance with 10 CFR 52.87, the ACRS
6 examined the staff's safety review of the North Anna
7 3 combined license application.

8 The staff presented its North Anna 3
9 combined license safety evaluation to the ACRS
10 Subcommittee in October of 2016 and presented again to
11 the ACRS Full Committee in November of 2016.

12 The ACRS issued a report on November 15,
13 2016 concluding that there is reasonable assurance
14 that North Anna 3 can be built and operated without
15 undue risk to public health and safety.

16 This ACRS report recommended approval of
17 the North Anna 3 combined license without condition.
18 There were no North Anna 3 application specific
19 recommendations for which the Committee sought
20 specific staff action or response.

21 The staff issued its Final Safety
22 Evaluation on January 12th, 2017.

23 Slide six, please?

24 The staff prepared SECY17-0009 dated
25 January 18th, 2017 to support this mandatory hearing.

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1 In that paper, the staff summarized the
2 basis that would support the Commission's
3 determination that the staff's review is adequate to
4 support the findings set forth in both 10 CFR 52.97
5 and 10 CFR 51.107 and provided an overview of the
6 findings that support the issuance of a combined
7 license for North Anna 3.

8 In order to issue a combined license, the
9 Commission must be able to conclude that each of the
10 following findings in 10 CFR 52.97 is met.

11 I will summarize the staff's basis
12 supporting each finding.

13 First, the applicable standards and
14 requirements of the Atomic Energy Act and the
15 Commission's regulations have been met.

16 The staff reviewed and evaluated the
17 application against the applicable criteria in 10 CFR
18 Part 51 entitled Environmental Protection Regulations
19 for Domestic Licensing and Related Regulatory
20 Functions and 10 CFR Part 52 entitled Licenses
21 Certifications and Approvals for Nuclear Power Plants.

22 Based on the staff's review, as documented
23 in its Final Safety Evaluation Report and the combined
24 license Supplemental Environmental Impact Statement,
25 the staff concludes that the applicable standards and

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1 requirements of the Atomic Energy Act of 1954 as
2 Amended and the Commission's regulations have been
3 met.

4 Second, any required notifications to
5 other agencies or bodies have been duly made.

6 As documented in the SECY paper, all
7 required notifications such as to the Virginia State
8 Corporation Commission as well as the required Federal
9 Register Notifications have been made.

10 Slide seven, please?

11 Third, there is reasonable assurance that
12 the facility will be constructed and operated in
13 conformity with the license the provisions of the
14 Atomic Energy Act and the Commission's regulations.

15 As the SECY paper states, the staff
16 believes that its review as documented in its final
17 safety evaluation report and the combined license
18 Supplemental Environmental Impact Statement, the
19 inspections tests, analyses and acceptance criteria,
20 or ITAAC, and the license conditions provide the
21 necessary assurance that the unit will be constructed
22 and operated as required.

23 Fourth, the applicant is technically and
24 financially qualified to engage in the activities
25 authorized. The technical and financial

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1 qualifications of the applicant are summarized in the
2 SECY paper and documented in detail in Chapters 1, 13
3 and 17 of the staff's Final Safety Evaluation Report.

4 Slide eight, please?

5 Fifth, the issuance of the COLs will not
6 be inimical to the common defense and security or the
7 public health and safety. The specific bases of our
8 inimicality finding have been provided in the staff's
9 SECY paper.

10 And, sixth, the findings required by
11 Subpart A of 10 CFR Part 51 have been duly made.

12 The staff's conclusions supporting the
13 findings required by Subpart A will be presented by
14 Anna Bradford who will now provide an overview of the
15 staff's environmental review.

16 MS. BRADFORD: Thank you and good morning,
17 Chairman Svinicki and Commissioners.

18 I will be discussing the Environmental
19 Review and will provide an overview of the process we
20 used in conducting this review, the Draft Summary
21 Record of Decision and the staff's recommendation as
22 a result of the review.

23 I will also discuss the regulatory
24 findings that need to be made before the combined
25 license can be granted.

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1 Slide nine, please?

2 The staff conducted its environmental
3 review for the North Anna Unit 3 COL application in
4 accordance with the National Environmental Policy Act
5 of 1969 and the requirements of 10 CFR Part 51.

6 The staff conducted its review based on
7 its independent assessment of the information provided
8 by the applicant and information developed
9 independently by the staff, including information
10 gathered through consultations of other agencies.

11 There were no cooperating agencies
12 participating with the staff in the North Anna COL
13 Environmental Review.

14 The fact that the North Anna COL
15 application references an early site permit, or ESP,
16 essential to understanding the staff's environmental
17 review for the North Anna COL as documented in NUREG-
18 1917, the Supplemental Environmental Impact Statement
19 for the combined license for the North Anna Power
20 Station Unit 3.

21 The NRC regulations require that for a COL
22 referencing an ESP, the staff is to prepare a
23 supplement to the Environmental Impact Statement that
24 was prepared for the ESP.

25 Slide ten, please?

1 Because an ESP requires and Environmental
2 Impact Statement that considers the impacts of both
3 construction and operation of a reactor or reactors at
4 a selected site, the regulations enable the COL review
5 to take advantage of the substantial resolution of
6 issues that occurs at the ESP stage.

7 Accordingly, the regulations in 51.92
8 direct the staff to address only issues that were not
9 resolved during the ESP review and to other focus on
10 whether there is new and significant information with
11 respect to the issues that were previously resolved.

12 The NRC began the environmental review
13 process for the North Anna COL application by
14 publishing a Notice of Intent to prepare a
15 supplemental EIS in the Federal Register on March
16 13th, 2008.

17 A scoping meeting was held on April 16th,
18 2008 in Mineral, Virginia to allow individuals to
19 participate in the scoping process by providing oral
20 comments.

21 The staff contacted federal, state,
22 regional and local agencies and federally recognized
23 Indian Tribes during the scoping period to solicit
24 comments.

25 The staff reviewed these and other public

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1 comments received during the scoping process and
2 responses were developed for each comment.

3 These responses were documented in a
4 Scoping Summary Report and are also provided in
5 Appendix D of the COL SEIS. All of these comments
6 were considered during the environmental review of the
7 COL application.

8 Specifically, the staff consulted with the
9 U.S. Fish and Wildlife Service, National Marine
10 Fishery Service, federally recognized Indian Tribes,
11 the Virginia Department of Historic Resources and
12 other agencies as required by the Endangered Species
13 Act, National Historic Preservation Act and other
14 statutes.

15 Slide 11, please?

16 The draft COL SEIS was issued in December
17 2008. A 75-day comment period for the draft COL SEIS
18 began on January 2nd, 2009, the date of publication of
19 the U.S. Environmental Protection Agency's Notice of
20 Availability.

21 The staff held a public meeting on
22 February 3rd, 2009 in Mineral, Virginia to describe
23 the preliminary results of the staff's environmental
24 review and to respond to questions and accept public
25 comments.

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1 The staff developed responses to the
2 comments received on the draft COL SEIS and provided
3 these responses in Appendix E of the final COL SEIS.

4 In March 2010, the staff issues the final
5 SEIS as NUREG-1917. As stated in the COL SEIS, the
6 staff's recommendation related to the environmental
7 aspects of the proposed action is that the COL should
8 be issued.

9 The staff based its recommendation on the
10 North Anna COL application environmental report, the
11 staff's review conducted for the ESP application and
12 documented in the ESP EIS, consultation with federal,
13 state, Tribal and local agencies, the staff's own
14 independent review of those issues that were deferred
15 to the COL and of the new and potentially significant
16 information available since publication of the ESP
17 EIS, the staff's consideration of comments that were
18 received during the review process and the assessments
19 summarized in the COL SEIS, including the potential
20 mitigation measures identified in the environmental
21 report and in the COL SEIS.

22 Slide 12, please?

23 At the time the COL SEIS was completed,
24 the staff's safety review of the application was still
25 in progress.

1 10 CFR 51.92 requires the NRC staff to
2 prepare a supplement to a final EIS if there are
3 substantial changes in the proposed action that are
4 relevant to environmental concerns or if there are new
5 and significant circumstances or information relevant
6 to environmental concerns that bear on the proposed
7 action or its impacts.

8 Accordingly, after completion of the COL
9 SEIS, the staff followed its process for consideration
10 of any new information to determine whether a
11 supplement to the COL SEIS might be necessary.

12 Based on its consideration of new
13 information since the COL SEIS was published, the
14 staff found that a supplement was not warranted.

15 Slide 13, please?

16 The staff included a Draft Summary Record
17 of Decision as a reference in the SECY paper sent to
18 the Commission on January 18th, 2017. This document
19 states the decision being made and identifies all
20 alternatives considered in reaching the decision.

21 The preferences among the alternatives are
22 also discussed.

23 Slide 14, please?

24 The Draft Summary Record of Decision also
25 states that the Commission has taken all practicable

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1 measures within its jurisdiction to avoid or minimize
2 environmental harm from the alternative selected.

3 Slide 15?

4 This slide lists the environmental
5 findings pursuant to 10 CFR 51.107a, that the
6 Commission must make to support the issuance of the
7 North Anna Unit 3 COL.

8 The staff believes that the scope of the
9 environmental review, the methods used to conduct the
10 review and the conclusion reached in the COL SEIS are
11 sufficient to support a positive determination
12 regarding these findings.

13 For the first finding, in accordance with
14 NEPA Section 102.2a, the staff's environmental review
15 used a systematic interdisciplinary approach to
16 integrate information from many fields including the
17 natural and social sciences as well as the
18 environmental sciences.

19 The staff's review also comports with the
20 NRC's requirements in Subpart A of 10 CFR Part 51.
21 The staff concludes that the environmental findings in
22 the COL SEIS constitute the hard look required by NEPA
23 and have reasonable support in logic and fact.

24 In accordance with NEPA Section 102.2c,
25 the COL SEIS for the North Anna COL addresses the

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1 environmental impact of the proposed action, any
2 unavoidable adverse environmental effects,
3 alternatives to the proposed action, the relationship
4 between local short-term uses of the environment and
5 the maintenance and enhancement of long-term
6 productivity and any irreversible and irretrievable
7 commitments of resources that would be involved in the
8 proposed action, should it be implemented.

9 As supported by correspondence presented
10 in Appendix F to the COL SEIS, and additional
11 documentation developed since then, the staff
12 concludes that the requirements of NEPA Section 102.2c
13 were fulfilled by consulting with and obtaining
14 comments from other federal agencies with jurisdiction
15 by law or special expertise.

16 In accordance with NEPA Section 102.2e,
17 the staff concludes that the COL SEIS demonstrates
18 that the staff adequately considered alternatives to
19 the proposed action.

20 The alternatives considered include the no
21 action alternative, energy alternatives, system design
22 alternatives and mitigation alternatives for severe
23 accidents.

24 Slide 16?

25 For the second and third findings which

1 appear on this slide and the next, Chapter 10 of the
2 COL SEIS provides the staff's cost benefit assessment
3 which considered conflicting factors such as the need
4 for power as well as reasonable alternatives to the
5 proposed action.

6 Slide 17?

7 Based on that analysis, the staff
8 concluded that the construction and operation of the
9 proposed North Anna Unit 3 would have accrued benefits
10 that would be expected to outweigh the economic,
11 environmental and social costs.

12 As a result, the staff recommends that the
13 COL be issued.

14 Slide 18, please?

15 For the fourth finding, the staff believes
16 that the Commission will be able to find, after this
17 hearing, that the NEPA review performed by the staff
18 has been adequate.

19 The staff performed a thorough and
20 complete environmental review sufficient to meet the
21 requirements of NEPA and adequate to inform the
22 Commission's action on the request for a COL.

23 I will now turn the presentation back to
24 Vonna Ordaz.

25 MS. ORDAZ: Thank you, Anna.

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1 During this hearing, the staff will be
2 presenting information on the issues listed on this
3 slide, slide 19.

4 The safety and environmental panels will
5 discuss unique facility features and novel issues that
6 arose as part of the review process.

7 Specifically, the safety panel will cover
8 two topics, the first is the Mineral, Virginia
9 earthquake. And, second is the seismic exceedance of
10 the certified design.

11 The environmental panel will discuss the
12 environmental review process for the North Anna 3 COL.

13 This concludes the staff's opening
14 remarks. We are prepared to respond to any questions
15 you may have.

16 Thank you.

17 CHAIRMAN SVINICKI: Thank you for those
18 presentations.

19 We will begin the questioning of this
20 panel with Commissioner Baran.

21 COMMISSIONER BARAN: Thank you.

22 Well, thank you, again, for your
23 presentations and for all of the hard work that went
24 into the reviews so far.

25 The staff published the Supplemental

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1 Environmental Impact Statement for the combined
2 license seven years ago in March 2010.

3 Anna, you briefly touched on this in your
4 presentation, but can you discuss in a little bit more
5 detail how the staff identified and analyzed any new
6 and potentially significant information from the past
7 seven years that could have triggered the need to
8 further supplement the EIS?

9 MS. BRADFORD: Sure. We do have guidance
10 within the Office of NRO about what needs to be looked
11 at and how it should be documented after any EIS has
12 been finalized to determine whether it needs to be
13 supplemented. And, we followed that guidance very
14 carefully.

15 Since the final EIS was published in 2010,
16 we've remained aware of changes in the environment or
17 changes in the project. We've talked to the applicant
18 during that time. We've done other NEPA type
19 searches.

20 There's resources available on the web
21 where you can look to see if there's maybe other
22 projects going up nearby.

23 And, we've documented all that and done an
24 analysis where needed to to see if we needed to
25 supplement. And, we're confident that the conclusions

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1 reached in 2010 are still applicable.

2 COMMISSIONER BARAN: This is the last COL
3 application the staff currently has for an ESBWR and,
4 presumably, the staff would have worked on the design
5 review and the two COLs referencing it are moving on
6 to other tasks.

7 Can you talk a little bit briefly, Vonna
8 or Frank or Anna, about how you're capturing and
9 documenting the knowledge of these individuals so that
10 the staff is prepared to review any future ESBWR
11 related licensing matters?

12 MS. ORDAZ: Absolutely. Frank?

13 MR. AKSTULEWICZ: So, one of the things
14 that we're going to be doing now as the staff frees up
15 to do them is to actually record as part of our
16 regulatory fabric the lessons learned.

17 And, we've done this traditionally, now
18 this will be the fourth or fifth time we've issued
19 lessons learned reports. So, moving forward, we're
20 going to capture that, I think.

21 We'll also be involved with building
22 office instructions and internal guidance memorandum
23 that captures -- we have a document that we refer to
24 as the end-game notebook that kind of builds on the
25 history of what we do every time we get near the end

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1 of a license or as we're getting ready to issue. So,
2 we'll be moving forward.

3 Whether or not that guidance will be
4 specific to an ESBWR, I'm not certain. But, we'll try
5 to make sure that the lessons learned during the
6 review process are captured.

7 COMMISSIONER BARAN: Thank you.

8 CHAIRMAN SVINICKI: Commissioner Burns?

9 COMMISSIONER BURNS: Well, thank you.

10 I'm going to ask a question similar to my
11 one I did for the applicant with respect to the
12 conceptual design of Part 52, if you will.

13 This is the second time we've looked at an
14 application for a combined license that also
15 referenced an earlier ESP.

16 As they say, I think looking at the Vogtle
17 experience, my recollection is we've basically at the
18 ESP at the same time we're looking at the COL.

19 And, as the applicant's answer to my
20 question seemed to indicate they viewed some benefits
21 from the ESP process that they then could use or
22 leverage in the COL.

23 So, my question I think to the staff is,
24 from your perspective, did the process work with
25 respect to the conceptual framework for ESPs and COLs

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1 within Part 52? Did that conceptual framework work
2 well with respect to this application? Were there any
3 unexpected challenges or lessons learned that -- or
4 lessons learned that you would have from this
5 experience?

6 MR. AKSTULEWICZ: That's a great question.

7 I think, as an initial starting point, I
8 think you would have to look at the benefit of the ESP
9 in the context of the RAIs that we had to ask in the
10 environmental review.

11 If you recall in the testimony, there was
12 -- we said there were only like 20 RAIs that were
13 issued on the whole environmental review from the ESP
14 was actually issued.

15 Because, the benefit really to an ESP is
16 the degree to which you close on matters. So the
17 broader the ESP coverage, the greater the benefit.

18 And, so, I think we've seen the benefit
19 exercised to great effect, both with Vogtle and with
20 North Anna simply because they chose to take on the
21 tougher issues to the extent that they could resolve
22 the emergency preparedness or others.

23 So, those issues were removed from the
24 additional review that had to be done when the COL
25 actually came in.

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1 So, in effect, I think we've seen the
2 great use of the ESP concept under Part 52 for both of
3 these applications.

4 COMMISSIONER BURNS: And, I guess, or any
5 of you -- okay, related to that, what kind of
6 discipline does, in effect, do you have to do in terms
7 of, I think the temptation is going to be, it says we
8 can look at -- we've got this thing in front of us.
9 It ultimately we're going to, you know, the question
10 is whether we're going to license or provide the full
11 COL.

12 What kind of discipline is there in terms
13 of making the kind of division, Frank, you talked
14 about in terms of things that have been resolved
15 versus this area?

16 And, sometimes, there are going to be gray
17 areas about other questions or issues that need to be
18 looked at in terms of the COL.

19 So, explain to me in terms of the process
20 of the discipline that within the staff for looking at
21 finality from the standpoint of what the ESP, yes, the
22 early site permit did versus what you need to go on
23 and do, either from a safety or an environmental
24 standpoint?

25 MR. AKSTULEWICZ: Sure. The clarity with

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1 which the safety evaluation and the environmental
2 documents are prepared provide that framework or
3 structure that you're referring to, Commissioner.

4 So, I think in both of the cases for both
5 Vogtle and for North Anna, the clarity of the safety
6 evaluations established clear boundaries around the
7 issues in terms of the scope of what was considered at
8 that time and what was evaluated.

9 And then, graced with a cover of finality,
10 if you will, for those matters.

11 So, it wasn't difficult for the staff to
12 have a clear understanding of those issues that were
13 included and those issues that were not.

14 And so, in, you know, in the hindsight,
15 effort that we were talking about with Commissioner
16 Baran about, going back and looking at our guidance to
17 make sure that when we discuss how we write our safety
18 evaluation, our environmental findings to make clear
19 there are certain areas that are still unresolved or
20 areas that are evaluated and have the finality
21 associated with them, that would be one of the things
22 we would want to make sure is clear in terms of going
23 on to the next step in whatever applications we
24 receive in the future.

25 COMMISSIONER BURNS: Okay, thank you.

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1 Thank you, Madam Chair.

2 CHAIRMAN SVINICKI: Well, thank you for
3 that presentation.

4 My questions will also, I think, be at a
5 kind of a high level, but this is an overview panel,
6 so I think that that's appropriate.

7 Vonna, you gave some statistics, I was
8 taking some quick notes here about the staff's review
9 effort. I think you said 105,000 staff hours. I
10 believe there was a discussions of contractor hours
11 that I think is separate and not imbedded in that
12 total of about 20,000 hours, over 100 public meetings
13 and conference calls and 820 staff questions, again,
14 20 of which, as Frank was just mentioning, were in the
15 environmental side, the predominance of those was in
16 the safety side.

17 There was a change in the designated
18 technology over the course of the entire review,
19 though. The totals seem a little bit higher than
20 numbers I've heard in other proceedings.

21 So, is it correct to assume that some
22 portion of the staff's effort was related to looking
23 at a technology and then having the technology
24 changes, is that why the hours might be a little
25 higher?

1 MR. ORDAZ: Yes, that's correct.
2 Essentially, the technology changed twice from the
3 ESBWR to the US-APWR and then back to the ESBWR.

4 So, with the technology changes as well as
5 the timing that we had to factor in the post-Fukushima
6 event as well as the Mineral, Virginia earthquake.

7 So, adding up all of that, that did add to
8 the total staff hours than previous proceedings that
9 you've heard.

10 CHAIRMAN SVINICKI: Okay, thank you. I
11 thought it was just important maybe to add that
12 context because, otherwise, it may look like there
13 were specific uniqueness and challenges on the safety
14 side of this review.

15 But, since there were changes, I think, as
16 you're indicating, some of the effort is attributable
17 to the changes that were made over time, which I'm not
18 making a judgment on one way or another, but they do
19 result in some additional process.

20 As I reflect on the period of time,
21 though, that those hours represent, we've made some
22 reference to the fact that it's been nearly ten years
23 in terms of receipt of the initial applicant interest
24 in getting to today.

25 Over the course of that time, I've been in

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1 my same job. But, as I look at the staff witnesses
2 and even people here at the table, Anna, I know has
3 held a number of positions in that time, Vonna same
4 for you. Frank has some pretty good continuity on the
5 issues.

6 But, how does the staff weight providing
7 continuity to our review? I know we are phasing in
8 and out different types of expertise over time. The
9 safety review takes a certain course, the
10 environmental review takes a certain course.

11 Do we find that we have a number of
12 different experts over the course of time? Or are we
13 able to devote people at least when a segment of the
14 review process is going on, keep the continuity until
15 they can document and complete their work and document
16 it, feed that into the overall review process?

17 How do we weight the value of some
18 continuity in staff assignments over something that
19 takes nearly ten years? Which might be, you know, a
20 third of somebody's entire career at NRC. I don't
21 know who might want to talk about that. It's a real
22 management question, it's not really a technical
23 question.

24 Frank, do you want to --

25 MS. ORDAZ: Go ahead, you've been here

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1 since the beginning.

2 (LAUGHTER)

3 MR. AKSTULEWICZ: Ouch. So --

4 COMMISSIONER BURNS: I know how he feels.

5 (LAUGHTER)

6 MR. AKSTULEWICZ: So, I think, you know,
7 that's a great perspective. I know that the staff
8 makes every effort to assure the continuity of the
9 review over the course of the review period.

10 And, as you might understand, people's
11 careers move on, right, people get promoted. And,
12 there is not much you can do to limit that movement.

13 But, while they are here, there's a great
14 effort to make sure that the assignments stay
15 continuous through the project as much as they can
16 from start to finish so that you don't lose that
17 perspective, you don't miss out on the, you know, or
18 you forget the questions that were asked or the
19 reasons the decisions were made.

20 And, that is a real challenge when we get
21 to the end part where we're getting ready to go to the
22 hearing and trying to recapture the history of the
23 review where you've had two or three or four maybe
24 reviewers over the course of that period simply
25 because of the continuity changes from staff movement.

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1 So, we do, again, to emphasize it, we do
2 place high importance on continuity of the reviewers
3 over the course of the review. We don't arbitrarily
4 change them in and out.

5 CHAIRMAN SVINICKI: Do we try, where
6 possible, to provide a little bit of a hand off or
7 overlap so that an expert coming into the process if
8 someone is moving on, they might be able to, I won't
9 call it double encumber, although that's the official
10 term, but we can have some continuity in terms of
11 maybe the overlap by a few weeks?

12 MR. AKSTULEWICZ: Yes. So, again, it
13 depends on the circumstances. Sometimes, the
14 departure is rather sudden and so you don't have that
15 luxury of transition where people, you know, leave the
16 Agency.

17 Where people are still within the Agency,
18 we take advantage of that opportunity in terms of the
19 transition where, you know, we can go to that
20 individual, be they in NRR or NMSS and say, we don't
21 understand what you were doing or why were you asking
22 this or, you know, what was the conclusion you were
23 trying to get? What was your concern as part of that
24 transition of knowledge?

25 So, to the extent that it is possible, we

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1 do do that to try to capture the knowledge of the
2 previous reviewer, but it's not always perfect.

3 MR. ORDAZ: And, I would offer that, as we
4 had a discussion earlier this morning with all the
5 witnesses, I asked the question, how many of you have
6 not been to a hearing before and served as a witness?

7 Not many hands went up, so I was very
8 impressed to see the number of returns as witnesses
9 through the proceedings. That was quite impressive.

10 As Frank mentioned, we're also focused on
11 knowledge management. It's a huge area, especially
12 with the budget and the future decrease and current
13 decrease as we have.

14 Turn over, clear communications, seamless
15 transition and a lot of this does fall to the first
16 line supervisor which is the branch chief, of course.
17 And, they play a pivotal role and have been doing a
18 marvelous job ensuring that we have seamless
19 transition.

20 CHAIRMAN SVINICKI: Well, thank you. And,
21 again, you responded to, I think it was Commissioner
22 Baran's question about, if there is some period of
23 dormancy between the issuance of this license and the
24 need for NRC to invigorate construction inspection and
25 oversight at some years later, it will be important,

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1 the knowledge management, maybe the oral history
2 interviews, other things that we do as part of our
3 knowledge management program.

4 Of course, the staff is very expert in
5 documenting and we have many reactors in this country
6 that have operated more than 40 years and we know how
7 to go back and have continuity to the early safety
8 determinations and licensing decisions.

9 I think what is a uniqueness here is that
10 there might be a period of some dormancy and we would
11 need to kind of re-energize that knowledge base. So,
12 I appreciate the staff's focus on that.

13 Dominion began in their overview
14 presentation by complimenting the staff's
15 professionalism, so I appreciate that.

16 Would you like to say or make any
17 commentary about the applicant?

18 (LAUGHTER)

19 MS. ORDAZ: Well, absolutely.

20 CHAIRMAN SVINICKI: Knowing that we've set
21 a very constructive tone already this morning.

22 MS. ORDAZ: We return the acknowledgment
23 of the professionalism. And, there's been wonderful
24 interactions, extended outreach to us also for the
25 site visit. They've been very generous with returning

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1 calls to us, RAI responses through the years.

2 So, it's been a very collegial,
3 professional interaction with Dominion. So, we thank
4 them.

5 CHAIRMAN SVINICKI: And, on a serious
6 note, I did note that part of their commentary was
7 about strong communications and it's a personal view
8 of mine that, no one is guaranteed an approval of
9 something if you submit something for review.

10 But, I do think that transparency in the
11 process, communication, understandings of, you know,
12 this issue is complex, we're going to need some more
13 engagement with you. I think that that is something
14 that applicants and the NRC can commit to each other
15 is just to keep the communication open.

16 And, I appreciate that the applicant made
17 an acknowledgment that NRC puts a tremendous effort on
18 the openness and transparency of our review processes.

19 So, I want to compliment staff on that
20 because it's hard to do when you're busy, say, oh, I
21 think I should probably notify this applicant of
22 something or other.

23 But, I think we place a strong value on
24 communicating where we are and the status of things.
25 So, I want to compliment you for that.

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1 We will now take a brief break as we reset
2 the panels.

3 We like to hold these to five to seven
4 minutes, so I'm going to ask perhaps at 10:30 that
5 individuals would be back in the room.

6 Thank you.

7 (Whereupon, the above-entitled matter went
8 off the record at 10:25 a.m. before coming back on.)

9 CHAIRMAN SVINICKI: All right, thank you
10 everyone, if we could resume now. We changed the
11 format a little bit in that the panels are combined
12 now and the staff will sit in chairs off a little bit
13 to the side, and we'll take the microphones after the
14 Applicant has presented.

15 So this is the Safety Panel. The parties
16 will address relevant sections of the application and
17 two chapters in particular from the final safety
18 evaluation report, Chapter 2 regarding Site
19 Characteristics, Chapter 3 regarding the Design of
20 Structures, Components, Equipment and Systems and
21 Chapter 4 regarding the Reactor Mechanical Components
22 of the North Anna ESBWR.

23 I remind the witnesses that they remain
24 under oath and advise the witnesses that they can and
25 should assume the Commission is familiar with their

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1 prehearing filings. I'm going to begin by asking the
2 panelists to please introduce themselves, starting
3 with Dominion.

4 MS. BORSH: Good morning, Commissioners.
5 I'm Gina Borsh from Dominion. I'm the Licensing lead
6 for the safety side.

7 MR. WADDILL: I'm John Waddill from
8 Dominion, consulting engineer for the engineering
9 side.

10 MR. MARRONE: I'm James Marrone,
11 seismologist with Bechtel Corporation.

12 MR. TODOROVSKI: Luben Todorovski, serial
13 structural engineer from GE Hitachi Nuclear Energy.

14 CHAIRMAN SVINICKI: Thank you, and I'll
15 have the staff introduce themselves when they take
16 their microphones. But would Dominion please proceed.

17 MR. WADDILL: Thank you, good morning.
18 The Safety Panel will present the development of the
19 seismic hazards analysis following the 2011 Mineral,
20 Virginia earthquake, and evaluation of structures,
21 systems, components and fuel in light of the
22 exceedances of these standard plan Certified Seismic
23 Design Response Spectra, or CSDRS.

24 Slide 2, please. The Mineral, Virginia
25 earthquake occurred on August 23rd, 2011. This was a

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1 magnitude 5.8 event with an epicenter located about 18
2 kilometers or more than 11 miles southwest of North
3 Anna, and a shallow depth estimated at 7.5 kilometers
4 or 4.7 miles.

5 This slide shows the location of the North
6 Anna site with a 25 mile site vicinity, indicated by
7 the red circle, as submitted locations for the source
8 of the estimate, whether USGS, the Virginia Tech
9 Seismic Observatory or a study by McNamara, et al.
10 published in 2014.

11 Slide 3, please. Dominion reevaluated the
12 seismic hazard for the site and developed new spectra
13 based on the most current guidance and methodologies.
14 The reevaluation followed Reg Guide 1.208 methodology
15 and used the newly-released Central and Eastern U.S.
16 seismic source characterization model, after updating
17 the seismic source catalogue to include the Mineral
18 earthquake and other events greater than magnitude 2.9
19 occurring through mid-December 2011.

20 Additionally, the updated EPRI 2013 ground
21 motion model was used in developing the revised
22 probabilistic seismic hazard analysis. New site-
23 specific response spectra, ground motion response
24 spectra and foundation input response spectra were
25 produced from the PHA results, using the guidance of

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1 ISG-017.

2 Slide 4, please. This slide shows the
3 resulting horizontal and vertical site-specific
4 response spectra for the reactor building and the fuel
5 building and the control building. The black line is
6 the CSDRS. The red lines are for the reactor
7 building/fuel building. The blue lines are for the
8 control building.

9 You can see that the site-specific
10 response exceeds the CSDRS at certain frequencies,
11 mostly in the mid- and higher range, though some fall
12 below 10 hertz.

13 Slide 5, please. Because of the
14 exceedances of the standard plant CSDRS, Dominion re-
15 performed the seismic analyses to show that the
16 standard design is adequate for use at Unit 3. Soil
17 structure interaction analyses and structure soil
18 structure interaction analyses were performed for the
19 seismic Category 1 structures.

20 The resulting seismic demands were then
21 developed and compared to the standard design. Site-
22 specific evaluations were performed to address
23 exceedances in the DCD seismic load demands previously
24 evaluated for the standard plant, in order to
25 demonstrate the adequacy of the design of the

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1 structures and components for the site-specific
2 conditions.

3 These site-specific evaluations were
4 performed following the approved ESBWR DCD
5 methodology.

6 Slide 6, please. The results of the
7 seismic evaluations show that the design to the DCD
8 seismic Category 1 structures are adequate for use at
9 Unit 3. Some minor changes to the standard design of
10 structures were required to withstand the site-
11 specific seismic load demands. No changes to member
12 sizes were necessary such as wall or slab thicknesses,
13 beam or column sizes.

14 The changes included modification of the
15 arrangement of some steel reinforcements and shear
16 ties, the size of the steel girder in the control
17 building and shear keys for the foundation of the fire
18 water service complex. As stated on the previous
19 slide, the site-specific seismic loading was applied
20 to the components that were evaluated in the DCD.

21 The DCD methodology was used to evaluate
22 components such as the PCCS condenser, fuel racks,
23 fuel and control rods. Minor adjustments were
24 required to some components including increasing size
25 of anchor bolts for the new fuel racks and the buffer

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1 pool, and increasing the weld size for the enveloping
2 plate, the base plates and the anchor bolt size for
3 the spent fuel racks in the buffer pool deep pit.

4 Additionally, the loads applied to the
5 saddle support bolts for the PCCS condenser are
6 increased to meet the seismic demands for Unit 3. In
7 summary, the evaluation of the standard plant design
8 for the increased seismic loading resulting from the
9 exceedance of the standard plant CSDRS has
10 demonstrated that the certified design is acceptable
11 for Unit 3. This completes Dominion's Safety Panel.
12 Thank you.

13 CHAIRMAN SVINICKI: Thank you. Would the
14 NRC staff witnesses please move in and sit before your
15 microphones? Would you begin by each introducing
16 yourselves and then proceed with the staff safety
17 presentation? Thank you.

18 MR. SHEA: My name is Jim Shea. I'm the
19 lead project manager for the review of the North Anna
20 3 reactor.

21 MR. GRAIZER: Vladimir Graizer. I am a
22 seismologist on the review of this application.

23 MR. CHAKRAVORTY: Manas Chakravorty. I am
24 a senior structural engineer in the Engineering
25 Division of Structural Engineering and Infrastructure,

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1 and I have been the lead reviewer for -- lead
2 structural reviewer for this application.

3 MR. THOMAS: I'm Matt Thomas. I'm a
4 reactor systems engineer in the Reactor Systems Branch
5 in the Office of New Reactors.

6 CHAIRMAN SVINICKI: Okay, thank you.
7 Please proceed.

8 MR. SHEA: Good morning Chairman Svinicki
9 and Commissioners. My name is James Shea and I am the
10 lead project manager for the staff review of the North
11 Anna 3 combined license application or COLA. Slide 2.
12 Joining me on this panel, as we just introduced
13 ourselves is Mr. Vlad Graizer, Manas Chakravorty and
14 Matt Thomas. We have additional staff available in
15 the audience for responding to questions as necessary.

16 Slide 3, please. The staff's presentation
17 for this panel will discuss two unique site-specific
18 topics of the safety review. First, the Mineral,
19 Virginia earthquake and second, the site-specific
20 exceedances of the ESBWR Certified Seismic Design
21 Response Spectra or CSDRS, including analysis of the
22 seismic structures, systems and components.

23 Next slide. Following the North Anna 3
24 technology change from Mitsubishi USAPWR technology
25 back to the ESBWR in April 2013, the staff had

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1 questions related to the site-specific seismic review.
2 These questions were prompted by the following
3 significant issues: The March 11th, 2011 Fukushima
4 event which prompted seismic hazards reevaluations for
5 the industry and for combined license applicants; the
6 August 23rd, 2011 Mineral, Virginia earthquake; the
7 updated Central Eastern United States Seismic Source
8 Characterization Model or CEUS SSC, which was released
9 in 2012 and can be found in NUREG-2115, and the EPRI
10 ground motion model or GMM which was updated in 2013.

11 Given these staff questions and following
12 meetings with the staff on several occasions in 2014,
13 the applicant submitted its seismic closure plan on
14 October 22nd, 2014.

15 Next slide. This slide shows the
16 relationship of the various seismic parameters that
17 were reviewed by the staff for the North Anna 3 site.
18 The seismic closure plan included establishing a
19 Uniform Hazards Response Spectra or UHRS, which is
20 shown in the figure at the base rock level for the
21 site using the EPRI 2013 ground motion model.

22 Next, the Ground Motion Response Spectra
23 or GMRS was developed for the site. Then the
24 individual Foundation Input Response Spectra or FIRS
25 were developed using the same UHRS input for each

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1 seismic structure. I would emphasize for context
2 later in our presentation that the GMRS is the site
3 hazard spectra, and that the structure FIRS are
4 specific to each seismic structure on the site.

5 The site-specific FIRS are compared to the
6 Certified Seismic Design Response Spectra, which is
7 the ESBWR seismic input spectra established for the
8 standard design to envelope the site seismic hazard
9 for most nuclear sites. In the case of North Anna 3
10 site, it was determined that the site-specific seismic
11 structural FIRS exceeded the CSDRS at some
12 frequencies, which required further analyses.

13 Following the analyses, the In-Structure
14 Response Spectra or ISRS are developed for the in-
15 structure systems and components. The in-structure
16 systems and components are subject to confirmation by
17 ITAAC during construction. I will now turn over our
18 presentation to Vlad Graizer, who will address the
19 topics of the Mineral, Virginia earthquake and the
20 site-specific GMRS.

21 MR. GRAIZER: Thank you, Jim. I am
22 Vladimir Graizer, geophysicist in the Office of New
23 Reactors. I will discuss the variance in the GMRS
24 between early site permit or ESP and combined license
25 application or COLA.

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1 Slide 7, please. After the ESP was issued
2 in 2007, the Mineral, Virginia earthquake occurred in
3 August 2011, approximately 11 miles away from the
4 North Anna 3 site. The earthquake is located in the
5 Central Virginia Seismic Zone, CVSG. This zone is
6 well known for its moderate seismicity. The largest
7 known earthquakes in this zone were magnitude 4.8 in
8 1875 and a magnitude 4.5 on December 9, 2003.

9 Both earthquakes occurred in Goochland
10 County, Virginia. As a result, both the Mineral
11 earthquake, the design basis earthquakes for the Units
12 1 and 2 were exceeded, and the plants were shut down
13 and inspected. There were no significant damage to
14 any Category 1 systems, structures and components.

15 Following the Mineral earthquake, the
16 Fukushima event and the publication of the new seismic
17 models that my colleague mentioned, staff requested a
18 reassessment of the Probabilistic Seismic Hazard
19 Analysis or PSHA for the site.

20 Slide 8, please. The left panel on this
21 slide demonstrates the location of the Mineral
22 earthquake relative to the North Anna 3 site. The
23 Mineral, Virginia earthquake was one of the largest
24 earthquakes that occurred in the Central and Eastern
25 United States in recent history.

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1 It had more than magnitude 5.8 and was
2 widely felt over a broad area inhabited by
3 approximately one-third of the U.S. population. The
4 epicenter of the Mineral earthquake was approximately
5 11 miles southwest of North Anna 3 site, at the focal
6 depths of about five miles.

7 The epicenter's location is shown by the
8 green and pink dots on the map, and the site is shown
9 with this dot. The right panel on this slide describe
10 the features of the Mineral earthquake. This
11 earthquake had a reverse hold mechanism with no
12 measurable surface rupture. Seismologists call it
13 blind reverse fault. In a reverse fault, one block is
14 pushed up relatively to other side. Blind fault means
15 that the fault rupture didn't reach the surface.

16 Slide 9, please. The North Anna COLA took
17 a variance from the spectra observation values in the
18 ESP for several reasons. First, the final elevation
19 of reactor and fuel building foundations in the COLA
20 were different than assumed in the ESP, and second,
21 the applicant used updated methodology and data
22 consistent with current NRC guidance.

23 As my colleague has described, the
24 applicant provided the seismic hazard analysis
25 following NRC staff request, to incorporate the new

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1 seismic source characterization for CEUS SSC, which
2 was published in NUREG-2115 in 2012; the new EPRI
3 ground motion model describing continuation of seismic
4 motions with distance from seismic source, which was
5 published in 2013; and the Mineral, Virginia
6 earthquake.

7 Slide 10, please. Staff performed its own
8 detailed independent confirmatory analysis. This
9 analysis included rock hazard, site response and GMRS
10 calculations. Staff confirmed Dominion's
11 calculations. The site-specific GMRS conservatively
12 enveloped the North Anna 3 site variations in their
13 response spectra.

14 Slide 11, please. This slide demonstrates
15 the GMRS for ESP and COLA in blue and black lines,
16 respectively. Relative to the ESBWR certified seismic
17 design response spectrums, CSDRS shown the red line.
18 The newly-calculated GMRS is less than the ESP at most
19 frequencies. This is due to elevation, control point
20 differences and application of new models and data in
21 the PSHA.

22 As was mentioned before, the change in the
23 control point reflects the actual elevation of the
24 reactor's foundation, rather than the elevation
25 assumed for it in ESP.

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1 Slide 12, please. This slide shows
2 comparison of the CSDRS, again the red line, with the
3 actual North Anna Unit 1 recordings. The regular
4 lines on the slide represent recorded ground motions
5 along the two horizontal and one vertical component of
6 the Mineral earthquake motion inside the Unit 1
7 containment.

8 It shows that the Mineral earthquake data
9 are significantly below the CSDRS for ESBWR. The
10 applicant's final seismic characterization satisfies
11 the requirement of Appendix A -- thank you. The
12 applicant's final seismic characterization satisfies
13 requirements of Appendix A to Part 50, General Design
14 Criterion 2, GDC-2, that states in part the design
15 basis for the structures, systems and components shall
16 reflect first, appropriate consideration of the most
17 severe of the natural phenomena that have been
18 historically reported for the site and surrounding
19 area.

20 Slide 3, please. In conclusion, the site-
21 specific GMRS adequately represents the seismic hazard
22 at the North Anna 3 site, and meets the relevant
23 regulatory requirements provided in 10 C.F.R. Part 52
24 and 10 C.F.R. Part 100. This concludes my
25 presentation. Thank you for your attention, and I

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1 will now turn over our presentation to Mr. Manas
2 Chakravorty.

3 MR. CHAKRAVORTY: Thank you Vlad and good
4 morning. I am Manas Chakravorty, and I'm a serial
5 structural engineer in the Office of New Reactors. I
6 am one of the reviewers of Section 3.7 and 3.8 of
7 North Anna 3 FSAR. These sections provide information
8 on seismic design of Category 1 structures. I will
9 discuss how the applicant has addressed the exceedance
10 of ESBWR seismic design basis at North Anna 3.

11 Slide 15, please. According to 10 C.F.R.
12 Part 52, a combined license application referencing a
13 design certification should demonstrate that the site
14 characteristics fall within the site parameters
15 specified in the design certification. At North Anna
16 3, the site-specific values do not fall within the
17 values established by the DCD site parameters CSDRS.

18 Because of this exceedance, the applicant
19 has taken a departure, Departure 3.7.1 from the ESBWR
20 certified design. The departure involves change to
21 ESBWR TI-1 information, which defines the safe
22 shutdown earthquake, or SSC in accordance with
23 Appendix S to 10 C.F.R. Part 50.

24 Therefore, the applicant also requested an
25 exemption, Exemption 3 from the DCD Tier 1 evaluation.

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1 Staff evaluation of the departure and exemption is
2 presented in FSAR Chapter 3.

3 Slide 16, please. This figure shows an
4 example of the seismic exceedances of the site-
5 specific horizontal foundation input response spectra
6 or FIRS when compared to the ESBWR CSDRS. Here, the
7 red line shows the CSDRS and the blue lines shows the
8 control building first.

9 As seen in this figure, the exceedance
10 started about six hours and above, and is considered
11 important for seismic analysis, those frequencies.
12 The applicant also revised the definition for the SSC,
13 now to include the both CSDRS and the site-specific
14 FIRS for each seismically qualified structure.

15 Slide 17, please. Because of exceedance,
16 the applicant needed to perform site-specific seismic
17 analysis to establish the seismic demand and site-
18 specific evaluations for Category 1 structures, using
19 the site-specific seismic demand along with other non-
20 seismic standard design loads. The seismic demand
21 consists of both the seismic load, which is discussed
22 below, and the structure response spectra or ISRS.

23 The site-specific seismic loads are used
24 for evaluation of these structures. The site-specific
25 ISRS that exceeds the standard design ISRS is used in

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1 addition to the standard design ISRS for seismic
2 design and qualification of systems, equipment and
3 components.

4 Slide 18, please. The applicant performed
5 site-specific soil structure interaction analysis to
6 establish the seismic demand. The analysis considers
7 the effective interaction between the soil and
8 structures. The analysis forward, the DCD methodology
9 and used first and site characteristics as input. The
10 SSI analysis indicate that both site-specific seismic
11 load demand and the ISRS exceed the corresponding DCD
12 seismic demand. Therefore, further the design
13 assessment of the SSCs is required.

14 Slide 19, please. The applicant used the
15 seismic loads obtained from the site-specific SSI
16 analysis, along with the non-seismic standard design
17 loads to determine the structural adequacy of the
18 SSCs. The evaluation saw that some changes to the
19 standard design is needed.

20 Specifically, as discussed in the
21 departure justification presenting in the Part 7 of
22 the COLA, the applicant identified the specific
23 changes necessary to ensure that SSCs are seismically
24 adequate to meet the site-specific seismic demand.
25 Identified changes to the certified design include the

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1 arrangements of steel reinforcement and shear ties,
2 the size of the steel girder, weld sizes and anchor
3 bolt sizes. No changes to the thickness of the
4 concrete walls and slabs were necessary.

5 Slide 20, please. Staff reviewed the
6 information provided in the COLA and verified by audit
7 and confirmatory analysis that the site-specific FIRS
8 and soil characteristics were used for establishing
9 the seismic demand for structure evaluation. The
10 analysis is based on the DCD methodology and therefore
11 acceptable. The staff also verified that the site-
12 specific evaluation was performed by comparing the
13 site-specific structural demands such as forces,
14 moments, shears, internal stresses with the ESBWR
15 structural capacities.

16 The staff further reviewed the identified
17 changes. The staff confirmed that with the identified
18 changes, the calculated combination of site-specific
19 seismic loads and non-seismic loads, non-seismic
20 standard design loads does not exceed structural
21 acceptance limit of the ESBWR standard design.

22 No changes to the sizes, again, was
23 necessary for walls and slab thicknesses. Details
24 from staff's evaluation is documented in the FSAR
25 Sections 3.7 and 3.8.

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1 Slide 21, please. ISRs are used for
2 qualification of systems, equipment and components.
3 Site-specific ISRS that exceeds standard design ISRS
4 are used, along with the standard design ISRS for
5 qualification of systems, equipment and components.
6 ITAACs ensure that Category 1 SSCs are qualified for
7 design basis load.

8 Slide 22, please. In conclusion, the
9 applicant has provided sufficient information to
10 demonstrate that with the identified design changes,
11 the ESBWR standard design is acceptable at the North
12 Anna 3 site. The staff also confirmed that with the
13 site-specific design changes, site-specific seismic
14 demands along with the non-seismic loads met ESBWR
15 structural acceptance limits.

16 This concludes my presentation, and thank
17 you for your attention. I will now turn over our
18 presentation to Matt Thomas. He will discuss site-
19 specific seismic evaluation of the fuel assembly and
20 control rod.

21 MR. THOMAS: Thank you, Manas, and good
22 morning Chairman Svinicki, Commissioner Burns and
23 Commissioner Baran. My name is Matt Thomas, and I'm
24 a reactor systems engineer in the Office of New
25 Reactors. I'm one of the technical reviewers who

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1 completed the review of the fuel and control rod sure
2 response aspects of the North Anna 3 combined license
3 application.

4 On the following slides, I'll present to
5 you the result of the staff's review of the
6 applicant's site-specific structural response analysis
7 for the North Anna 3 GE-14E fuel assemblies and the GE
8 Marathon control rods.

9 Slide 24, please. As a result of the
10 site-specific seismic exceedance, which was discussed
11 in the earlier presentations by my colleagues Vlad and
12 Manas, the fuel assemblies and control rods experience
13 increased seismic loads at the North Anna 3 site. In
14 accordance with the ESBWR standard design and general
15 design Criterion 2, the staff requested the applicant
16 to show that this increase in seismic load, in
17 combination with hydrodynamic loads, remains bounded
18 by the component's approved capacity limits.

19 The applicant completed an analysis to
20 demonstrate that the higher site-specific combined
21 loads do not surpass the previously approved capacity
22 limits.

23 Slide 25, please. Following the guidance
24 in Standard Review Plan Section 4.2, Appendix Alpha,
25 the staff reviewed the applicant's site-specific

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1 analysis of the fuel assembly and control rod
2 structural response to externally applied forces. As
3 part of this review, the staff conducted a regulatory
4 audit of the site-specific calculations in order to
5 confirm that the applicant followed the approved
6 center design methodology.

7 Slide 26, please. As a result of the
8 review, the staff found that despite the site-specific
9 seismic exceedances, the fuel assembly and control rod
10 design specified for use at North Anna 3 are in
11 compliance with general design Criterion 2, because
12 the increased site-specific combined loads do not
13 exceed the components' previously approved capacity
14 limits. This concludes the staff's Safety Panel
15 presentation, and we appreciate your attention.

16 CHAIRMAN SVINICKI: Thank you. Before we
17 begin the Q and A for the combined panel, I just want
18 to note that for Mr. Thomas we have identified you as
19 Aaron Thomas. You introduced yourself as Matt. You
20 are indeed the witness that we put forward? I guess
21 you're not his twin brother or something who came in
22 during the break and substituted out, tapped out? Is
23 it Aaron Matthew Thomas? Is that --

24 MR. THOMAS: Yes ma'am, that's correct.

25 CHAIRMAN SVINICKI: Okay, thank you very

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1 much. We'll begin the questions -- having established
2 the identity of the witness, we will begin with
3 Commissioner Burns.

4 (Laughter.)

5 COMMISSIONER BURNS: Yes, and I am Stephen
6 Gilbert Burns.

7 (Laughter.)

8 COMMISSIONER BURNS: Thanks for the
9 presentations. One question I have for the applicant
10 panel, with regard to the results of the reevaluation
11 of the seismic, Unit 3 seismic hazard, you stated in
12 general designs of components and fuel as described
13 are adequate for use at North Anna 3. But you noted
14 that there are some minor adjustments required for
15 some components, and it would be helpful if you could
16 give an example or two of what you're suggesting or
17 what you are alluding to in your testimony.

18 MR. WADDILL: Sure. I mentioned with the
19 fuel racks in the buffer pool, in two cases the anchor
20 bolts had to be changed. So the size went from one
21 size to the next size up. So it wasn't enough of a
22 change to warrant a major component change. That sort
23 of thing is what we're talking about. The weld again,
24 there was a slight increase in the weld size in order
25 to handle the stress.

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1 COMMISSIONER BURNS: Okay, thank you.
2 Other questions really go to the staff witnesses. My
3 impression from the discussion, and we've had a lot of
4 discussion about the Mineral, the 2011 earthquake in
5 Mineral, and the -- and also how that affected and how
6 it affected this application and we've talked about,
7 we just talked about some of the, you know, minor
8 adjustments to some components, other ways in terms of
9 our analysis.

10 But I think if my impression is correct,
11 it's not just the Mineral earthquake, but it's also
12 it's sort of was the evolving, it's our evolving
13 approach or analysis of seismic, basically seismicity
14 in the United States. I know this has been an issue,
15 you know. I was a young attorney here in terms of
16 probably right after North Anna 1 and 2 were licensed.
17 But the whole, the whole issue in terms of looking at
18 seismicity in the United States and particularly in
19 the central and eastern part of the U.S.

20 So I am correct. This not merely an
21 outcome of the particular event in Mineral, but it's
22 also sort of our evolving knowledge in terms of
23 seismic issues that we -- in our analysis. Mr.
24 Graizer.

25 MR. GRAIZER: Starting from the end, you

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1 are correct. It is a correct understanding that of
2 course we did a lot of studies and we reviewed a lot
3 of papers related and work related to Mineral,
4 Virginia earthquake. But it is correct to say that
5 the biggest changes came from the new, what we call
6 NUREG-2115 or new seismic source characterization for
7 the United States, for the central eastern United
8 States.

9 It's a huge seven volume document. It
10 supercedes the previous one. It is much more detailed
11 and much more kind of deeply studied. That's number
12 one. Of course number two was mentioned. Our new
13 ground motion prediction equations or GMM, ground
14 motion models, which actually give us the pass from
15 the source to the site.

16 This model was also updated in 2013. The
17 previous was 2004. This kind of further changes our
18 domain, which influenced the change in seismic hazard.

19 COMMISSIONER BURNS: Okay. Thanks very
20 much for that. One of the things is the staff's
21 testimony and the staff documentation notes that site-
22 specific in-structure response spectra that exceeds
23 the standard design in-structure response spectra are
24 used for qualification of equipment and components,
25 and that the ITAAC ensures that seismic Category 1

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1 structures, systems and components are qualified to
2 seismic design baseloads.

3 Are there site-specific ITAAC required to
4 address the exceedances here, beyond what the standard
5 ESBWR ITAAC would cover?

6 MR. SHEA: Yeah. There is one specific,
7 site-specific ITAAC related to control blades and
8 Matt, do you have -- do you want to add to that?

9 MR. THOMAS: Yeah. So the applicant
10 provided a site-specific ITAAC for the control blades
11 that was not originally provided in the DCD. The
12 ITAAC itself with the control blades, the goal of it
13 is similar to the goal of the ITAAC for the fuel that
14 was provided in the DCD. So as a result of the
15 increased loading at the fuel and control blades and
16 the core, the applicant took the steps to, you know,
17 ultimately verify and confirm that the as-built fuel
18 and control rods and other structures that go into
19 this analysis can meet the acceptance limits.

20 COMMISSIONER BURNS: Okay. All right,
21 thanks. I'm going to refer to a Prehearing Question
22 10, which asked about differences in the wording of
23 the mitigation strategies license condition in the
24 Fermi Unit 3 COL, and the draft combined license for
25 North Anna Unit 3.

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1 In response to the Commission question,
2 the staff said it proposes revising the condition.
3 This is Condition 2(d)(12)(F)(2), just so we're all on
4 the same page, to match the equivalent license
5 conditioning. I would just ask the staff can you
6 confirm that in fact this revision is being made to
7 the North Anna, the proposed North Anna license?

8 MR. SHEA: Yes. We have an ongoing effort
9 to take all these issues that we've discovered and
10 also with comments from Dominion on the license, to
11 address them in this post-hearing activities, you
12 know. So we would then put forward our proposed
13 changes to those license conditions.

14 COMMISSIONER BURNS: Okay, thank you.
15 Thank you. Madam Chairman.

16 CHAIRMAN SVINICKI: Well, let me -- I
17 appreciate that, Commissioner Burns have established
18 that. I think there might have been even more than
19 one reference in responses to prehearing questions, to
20 the need to modify some of the proposed license
21 conditions as laid before the Commission in advance of
22 the mandatory hearing.

23 So I appreciate the staff's commitment
24 that they will have a close tracking of any of those
25 needed changes prior to -- should a decision be made

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1 to authorize the issuance of the licenses, so that we
2 will correct those matters, which I think are in
3 substantial agreement between the staff and the
4 applicant.

5 Let me turn to the response to Prehearing
6 Question 7. It was responded to by both the staff and
7 the applicant. A slight difference here in the
8 responses. It refers to the proposed license
9 condition on severe accident management guidelines.
10 The question was "Provide the regulatory basis for a
11 requirement that is proposed to be enshrined in a
12 license condition."

13 The staff responded that "There is no
14 explicit regulatory basis that requires the SAMG
15 license condition." The applicant's response
16 emphasized, however, that the proposed SAMG license
17 condition reflects Section 18.9 of the design control
18 document.

19 Now it will come as no surprise to the
20 staff my having inquired of this earlier, that some
21 level of discipline and rigor on substantiating
22 regulatory bases for the imposition of requirements is
23 a personal point of emphasis with me.

24 This may require a staff witness to come
25 to the podium, since this wasn't strictly addressed by

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1 the staff panel. But could the staff elaborate on its
2 response that there's no explicit regulatory basis,
3 but we did it for Fermi 3, so we propose to do it
4 again? Is there a staff witness that could elaborate
5 on that? Frank, please go ahead and I note, of
6 course, because you've presented you have been sworn
7 in.

8 MR. AKSTULEWICZ: Okay, yes. This is
9 Frank Akstulewicz. I'm the director, Division of New
10 Reactor Licensing and I have been sworn. So the whole
11 process of how we ended up with where we are on the
12 ESBWR, I'm sorry, on North Anna, has a little bit of
13 a twist to it. So as part of the design-centered
14 review approach, Dominion submitted a license
15 condition to align itself with the RCOLA.

16 So when we answered, you know, the
17 regulatory basis, we were not going back to
18 substantiate the foundational reason for why a
19 condition was required. We were just referring to the
20 fact that okay, the information was provided as part
21 of a process to align or standardize between the two
22 units.

23 The history of the conditions that are
24 being used for SAMGs goes back way to the AP1000s, and
25 if the Commission would desire, we'd rather provide

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1 that history chronologically in writing, so we would
2 take that for the record.

3 CHAIRMAN SVINICKI: Okay. I think it is
4 useful to have a very precise discussion of this, and
5 again the Commission has considered with particularity
6 the continued regulatory treatment of SAMGs, has
7 issued direction on that. And so I get a little
8 uncomfortable when things got a little murky because
9 we have a practice, but the Commission has issued a
10 particular reemphasis on SAMGs receiving a certain
11 regulatory treatment.

12 So I think we need to have some purity to
13 the Commission's decision-making, as well as
14 continuity with the history of treatment of issues.
15 It sounds like that is fairly complex and would be
16 well served by a written answer from staff that would
17 explain that. So I think it's likely that you would
18 receive a post-hearing question directed to the staff
19 on that point, which will allow you to provide that.

20 MR. AKSTULEWICZ: We'd be happy to provide
21 that answer, Chairman.

22 CHAIRMAN SVINICKI: Thank you, and with
23 that I will now recognize Commissioner Baran.

24 COMMISSIONER BARAN: Thank you. Well, I
25 appreciate the thorough discussion of the seismic

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1 issues, which I think were well-covered, and I wanted
2 to follow up a little bit on the discussion of the
3 license condition for Severe Accident Management
4 Guidelines or SAMGs for Unit 3. We might be able to
5 get a little bit further than we did in just the
6 discussion we had there.

7 Let me start with just a few questions for
8 Dominion on this. My understanding is that the ESBWR
9 design control document requires a COL applicant
10 referencing the ESBWR certified design to develop
11 site-specific SAMGs as part of its procedure
12 development, and the North Anna Unit 3 FSAR
13 incorporates this provision of the DCD. Is that
14 right?

15 MS. BORSH: That's correct.

16 COMMISSIONER BARAN: So consistent with
17 the DCD and the FSAR, Dominion proposed a license
18 condition on SAMGs; is that correct?

19 MS. BORSH: That's correct.

20 COMMISSIONER BARAN: Okay.

21 MS. BORSH: I'm hesitating because --

22 COMMISSIONER BARAN: You seem hesitant.

23 MS. BORSH: Yes, because as Frank said, we
24 did not -- we proposed the license condition based on
25 Fermi's application, not because we were reading the

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1 DCD and said oh, it needs to be in there.

2 COMMISSIONER BARAN: Okay, and so -- and
3 that's a good thing to clarify, so that Fermi Unit 3
4 is the reference plant for this design, and a
5 substantively similar license condition was in their
6 combined license; is that correct?

7 MS. BORSH: That's correct.

8 COMMISSIONER BARAN: Okay, and so a
9 probabilistic risk assessment is required for Unit 3.
10 Does the -- do the Unit 3 PRAs factor in the use of
11 SAMGs?

12 MS. BORSH: We haven't done, completed the
13 Unit 3 PRA yet. That won't -- that's not required to
14 be completed until prior to fuel load.

15 COMMISSIONER BARAN: Okay.

16 MS. BORSH: Approximately 12 months prior
17 to fuel load I believe.

18 COMMISSIONER BARAN: Do you expect the
19 SAMGs would be incorporated into the PRA?

20 MS. BORSH: That's a question I'm going to
21 have to defer to our GEH representative. May I? I'm
22 going to ask David Hinds to answer that question
23 please.

24 CHAIRMAN SVINICKI: And Mr. Hinds, as you
25 approach the microphone, could you state your name,

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1 your affiliation and verify that you've been sworn and
2 are listed as a witness?

3 MR. HINDS: Hi. This is David Hinds with
4 GEH. I have not been sworn in at this time.

5 CHAIRMAN SVINICKI: Okay. Well then we
6 need to -- I think I will ask the general counsel to
7 provide that. Would you raise your right hand? Do
8 you swear or affirm that the testimony you will
9 provide in this proceeding is the truth, the whole
10 truth and nothing but the truth?

11 MR. HINDS: I do.

12 CHAIRMAN SVINICKI: Thank you. Please
13 proceed with your answer.

14 MR. HINDS: For the site-specific PRA as
15 was stated, it's committed that it will accomplished
16 approximately one year prior to fuel load. The PRA
17 includes operator actions as needed. The ESBWR, due
18 to its simplicity, does not rely on operator actions
19 for normal operational events or for design basis
20 events.

21 In the case where a severe accident would
22 be assumed and if an operator action were assumed then
23 yes, the operator action and operator action governed
24 by SAMGs would be included in the PRA. But as I
25 stated, the operator actions are generally not

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1 credited for the ESBWR due to its passive safety
2 nature.

3 COMMISSIONER BARAN: Okay. Thank you for
4 that clarification. Chairman Svinicki, maybe we could
5 turn to the staff, and I don't know if Frank wants to
6 respond to this or Jim or another staff member or
7 witness. Chairman Svinicki referenced the prehearing
8 response and stated there's no explicit regulatory
9 basis that requires a SAMG license condition.

10 My sense though, based on the DCD and the
11 FSAR, is that's kind of an incomplete picture, because
12 the ESBWR DCD requires the development of these
13 procedures, right?

14 MR. AKSTULEWICZ: Frank Akstulewicz again.
15 Yes, I've been sworn in. This gets to the story that
16 I was telling you we need to prepare, in terms of how
17 requirements guide institutionalized or where. So
18 again, I'd defer that question to the written response
19 we'll provide.

20 COMMISSIONER BARAN: Okay, fair enough.
21 Thank you.

22 CHAIRMAN SVINICKI: Okay. Well, I thank
23 all of the witnesses on the Safety Panel and those who
24 came to the microphone. It is now 20 minutes after
25 11:00, and although we're running a little bit ahead

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1 of schedule, I think that we will still plan on
2 reconvening just a little bit earlier than we
3 otherwise would have.

4 So I think we will resume at one o'clock,
5 and I do ask that it be a very prompt start at one
6 o'clock. So please, we are adjourned for a lunch
7 break until one o'clock. Thank you.

8 (Whereupon, the above-entitled matter went
9 off the record at 11:21 a.m. and came back on at 1:03
10 p.m.)

11 CHAIRMAN SVINICKI: Well good afternoon
12 everyone. I call the hearing to order once again. We
13 will now hear from the Environmental Panel. The
14 parties will address the environmental review
15 performed in connection with the combined license
16 application, including the preparation of a
17 supplemental Environmental Impact Statement.

18 To provide context for this combined
19 license proceeding, the staff will provide an overview
20 of the environmental review performed in connection
21 with the North Anna early site permit. The staff also
22 will address the NEPA process associated with the
23 combined licensed referencing an early site permit.

24 I remind all of the witnesses that they
25 remain under oath, and I also advise that witnesses

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1 can and should assume that the Commission is familiar
2 with their prehearing filings. I would begin by
3 asking the panelists from the applicant to please
4 introduce themselves.

5 MR. MILLER: Good afternoon, Chairman and
6 Commissioners. My name is Keith Miller. I'm the
7 Dominion Environmental Lead for the North Anna 3
8 project.

9 MR. BANKS: I'm Tony Banks with the North
10 Anna 3 project.

11 MR. HEGNER: I'm Joe Hegner, the Dominion
12 Licensing Manager.

13 CHAIRMAN SVINICKI: I would now ask the
14 applicant witnesses to please proceed with their
15 presentation.

16 MR. BANKS: Good afternoon Chairman
17 Svinicki, Commissioners Baran and Burns. I'm Tony
18 Banks, and one of my initial mitigating strategies is
19 to clarify that I was sworn in as Louis T, and I go by
20 Tony.

21 (Laughter.)

22 MR. BANKS: To some extent, you've read
23 and/or heard information that we have to present, but
24 we think it's a good story worth repeating. With me
25 are Keith Miller and Joe Hegner whom you've heard from

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1 earlier today, and this panel will be presenting a
2 summary of the environmental review conducted for
3 North Anna 3, and an overview of the new and
4 significant information, identification and review
5 process.

6 Slide 2, please. The overall goal for the
7 North Anna 3 environmental review was to ensure that
8 the potential environmental impacts from the project
9 are known and thoroughly evaluated. The environmental
10 review effort for the North Anna 3 began in the early
11 site permitting process. Following submittal of the
12 early site permit application, the NRC staff conducted
13 a comprehensive review and published its final
14 Environmental Impact Statement in December 2006. This
15 document supported the issuance of the early site
16 permit.

17 Environmental review of the North Anna 3
18 site and other offsite areas affected by the project
19 continued, and was performed by Dominion to support
20 preparation of the COLA environmental report. This ER
21 documented environmental issues not resolved during
22 the ESP proceeding, as well as new and significant
23 information.

24 The NRC staff documented their additional
25 and independent environmental review and supplemental

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1 EIS published February 2010. This document has
2 recommended issuance of the combined license. To
3 support the review for the supplemental EIS, the NRC
4 consulted with various federal, tribal, state and
5 local agencies and listened to many other stakeholders
6 as well.

7 This was an open and thorough consultation
8 process, which maximized input from those required and
9 other interested parties. Environmental impact
10 conclusions reported in the supplemental EIS ranged
11 from small to moderate.

12 Slide 3, please. As mentioned in the
13 overview presentation, the early site permit process
14 allows a combined license applicant to defer
15 resolution of certain issues to that application
16 stage. Unresolved issues were given in two
17 categories, those dependent on a specific reactor
18 design and those that can be deferred until COLA
19 submittal.

20 An issue evaluated dependent on specific
21 reactor design selection is the severe accident
22 mitigation design alternatives or SAMDAs. Examples of
23 unresolved issues from the ESP proceeding included
24 energy alternatives and need for power. Unresolved
25 issues from the ESP proceeding were addressing by

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1 Dominion in the North Anna 3 COLA.

2 The NRC staff then has documented their
3 evaluation and conclusions related to these issues in
4 the supplemental EIS.

5 Slide 4, please. A major effort since the
6 ESP final EIS was written is the identification and
7 review of new and significant information. The
8 objective with the new and significant information
9 process is to capture relevant information and
10 evaluate whether it could affect a conclusion in
11 either the NRC's final EIS or supplemental EIS.

12 The new and significant information
13 process is a multi-step process administered in the
14 North Anna 3 project procedure. It was first used in
15 preparation of the COLA ER. Subject matter expert
16 teams parsed and reviewed key inputs to conclusions in
17 the ESP EIS, identifying if any new information
18 existed pertinent to those key inputs. It was then
19 evaluated for significance relative to the conclusions
20 in the EIS.

21 If found to be significant, environmental
22 report content was revised to provide evaluation
23 results. Details on the process are also contained in
24 the COLA ER. Some examples of new and significant
25 information identified during the COLA process are a

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1 new 500 kV transmission line not realized during the
2 ESP process; a large component transport route;
3 acquisition of additional property to support
4 construction; radiation exposure to construction
5 workers; and seismological conditions and impacts.

6 While geological make-up may not have
7 changed, we accounted for the Mineral earthquake and
8 did not see any environmental impacts associated with
9 that event.

10 Slide 5, please. The reviews for new and
11 significant information have continued through the
12 years for environmental review and are still
13 continuing. This thorough process provides assurance
14 that we as the applicant are identifying changing
15 conditions and evaluating the effect on past
16 conclusions made.

17 The new and significant information
18 process has been audited several times during the
19 application review, most recently by NRC staff in June
20 2016. The exit briefing noted that Dominion followed
21 its methodology and provided documentation of its
22 implementation.

23 The NRC has a parallel process for
24 identifying and evaluating new information. These
25 independent reviews by the staff have also been

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1 continuing. This concludes our panel remarks. We
2 look forward to addressing your questions. Thank you.

3 CHAIRMAN SVINICKI: Thank you for that
4 presentation. I'll now ask the NRC staff witnesses to
5 move into position behind their nameplates, and please
6 begin by introducing yourselves and then proceed to
7 your presentations.

8 MS. DOZIER: My name is Tamsen Dozier.
9 I'm sorry. My name is Tamsen Dozier. I am the
10 Environmental PM for the North Anna 3 application.

11 MR. KUGLER: My name is Andy Kugler, and
12 I'm an Environmental Project Manager for New Reactors,
13 and I've worked on the North Anna application.

14 CHAIRMAN SVINICKI: Thank you. Please
15 proceed.

16 MS. DOZIER: Good morning Chairman and
17 Commissioners. I'm doing the introduction again. My
18 name is Tamsen Dozier from the Division of New Reactor
19 Licensing, and am the current project manager for the
20 environmental review for the North Anna Unit 3
21 combined license application.

22 Slide 2, please. With me is Andrew Kugler
23 from the Division of Site and Environmental Analyses.
24 Today, we will be presenting the staff's environmental
25 review of the North Anna 3 application. In presenting

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1 how the staff conducted its environmental review, we
2 will focus on how we fulfilled the agency's obligation
3 under NEPA as set forth in the agency's regulations in
4 10 C.F.R. Part 51.

5 Consistent with the findings summarized in
6 the staff's SECY information paper, this presentation
7 will outline for the Commission the adequacy of the
8 staff's review and why it supports the issuance of the
9 requested combined license.

10 Slide 3, please. This slide briefly
11 describes the structure of today's presentation. The
12 NRC's regulations require that for a COL referencing
13 an early site permit or ESP, the staff is to prepare
14 a supplement to the Environmental Impact Statement
15 prepared for the ESP.

16 Mr. Kugler will first explain the role of
17 the North Anna power station ESP EIS in the COL
18 review. He will describe the structure and key
19 findings of the ESP EIS as the starting point for the
20 development of the COL supplement. I will then
21 describe the process that the staff used to prepare
22 the supplement for the COL review, which I will refer
23 to here as the COL SEIS.

24 I will outline the staff's evaluation of
25 findings in the various resource areas covered by the

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1 review. Finally, I will describe the process the
2 staff used to identify and evaluate new information
3 since the issuance of the COL SEIS. I will describe
4 how the staff determined that a supplement was not
5 warranted, and that the impact evaluations in the COL
6 SEIS remained valid.

7 I will now turn to Mr. Kugler for a
8 summary of the environmental review for the early site
9 permit.

10 MR. KUGLER: Thank you, Tammy, Chairman,
11 Commissioners. Slide 4, please. I'd like to start by
12 discussing three different aspects of the North Anna
13 ESP. First, similar to most of the other ESP reviews,
14 the North Anna ESP used the plant parameter envelope
15 or PPE approach, in which no specific reactor design
16 was chosen as a source of parameters for analysis
17 during the ESP review.

18 Instead, the review relied on a set of
19 design parameters that served as a surrogate for
20 actual design information. The design parameters were
21 developed by Dominion using seven different reactor
22 designs.

23 Dominion's environmental report in support
24 of the ESP and subsequently the NRC's EIS for the ESP
25 evaluated the impacts of construction of two new

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1 reactors at the site, with design characteristics
2 bounded by the PPE.

3 Second, in 2007 the NRC published
4 revisions to its rules related to limited work
5 authorizations or LWAs, which revised the definition
6 of construction activities in 10 C.F.R. 50.10. This
7 rulemaking excluded from NRC jurisdiction certain
8 activities such as site preparation and building of
9 service facilities at the site.

10 In addition, the revisions removed the
11 option to authorize LWA-type activities through the
12 ESP itself. Based on the revised rule, a separate LAW
13 would be required for such activities. The rulemaking
14 provided that ESP applications that were under review
15 at the time the rule became final are required to
16 comply with the previous version of the rule.

17 Therefore, the term "construction" in the
18 North Anna ESP EIS and COL supplemental EIS is based
19 on the previous rule and includes activities that
20 would now be considered pre-construction in new
21 reactor EISs that the NRC has issued since the rule.

22 Finally, as permitted by NRC regulations,
23 some issues were deferred at the time of the ESP to be
24 addressed in the combined license application.
25 Likewise, a limited number of issues were determined

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1 by the NRC to be unresolved during the ESP review.
2 These issues also had to be resolved during the review
3 for the COL application. I'll discuss these items
4 further in a moment.

5 Slide 5, please. As directed by the
6 regulations, the final EIS for the ESP was a key
7 starting point for the development of the COL
8 supplemental EIS. I will now briefly summarize the
9 conclusions in the ESP EIS. The ESP conclusions were
10 reached using significant level definitions of small,
11 moderate and large.

12 These definitions are based on guidance
13 developed by the Council on Environmental Quality.
14 They consider whether environmental impacts are
15 detectable and if so, whether they are sufficient to
16 noticeably alter or destabilize important attributes
17 of the resource. The staff found in the ESP EIS that
18 with a few exceptions, the environmental impacts of
19 construction of two new units at the North Anna ESP
20 site would be small. For many resource areas, the EIS
21 explained why impacts would be temporary or would be
22 mitigated.

23 In a few subcategories of socioeconomic
24 resource areas, such as transportation and housing,
25 the staff determined that adverse impacts would be

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1 small to moderate. In addition, there would be some
2 beneficial impacts on the subcategories of economy and
3 property taxes that would be small to moderate.

4 Slide 6, please. During plant operations,
5 the staff also concluded that most impacts would be
6 small. However, the staff determined that impacts
7 from plant operation on water use would be moderate
8 during drought years. The staff also identified small
9 to moderate impacts during operations to aesthetics
10 and recreation. Finally, the staff concluded that
11 there would be small to moderate beneficial impacts to
12 the economy, and small to large beneficial impacts
13 from tax revenues.

14 Slide 7, please. As permitted by the
15 regulations, the applicant chose to defer the
16 evaluation of the need for power and of energy
17 alternatives to the combined license review.
18 Therefore, these issues were not evaluated in the EIS
19 to the ESP.

20 In addition, the staff was unable to
21 resolve a few issues in the EIS to the ESP. Because
22 information on the exact composition of water
23 effluence was not known during the ESP review,
24 operational impacts on water quality were unresolved.
25 The chronic effects of electromagnetic fields were not

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1 resolved because conclusive scientific information was
2 not available.

3 In addition, the staff could also not
4 resolve the consideration of alternatives to portions
5 of the cooling system. Finally, because a specific
6 reactor technology had not been chosen, the NRC staff
7 was unable to resolve the impacts of accidents and
8 severe accident mitigation alternatives, the fuel
9 cycle, transportation of radioactive materials and
10 decommissioning.

11 Slide 8, please. By rule, in the EIS for
12 the ESP the staff must reach a conclusion regarding
13 the site chosen by the applicant. For the North Anna
14 ESP, the staff examined three alternative sites and
15 concluded that there was no environmentally preferable
16 alternative site, and therefore that there was no
17 obviously superior alternative site.

18 Dominion's ESP application included a plan
19 for the redress of certain activities related to site
20 preparation and nuclear unit construction that would
21 be permitted under the ESP. In accordance with the
22 regulations in effect at the time of the application,
23 the NRC staff reviewed and approved the site redress
24 plan and the ESP authorized those activities to take
25 place. I will now turn it back over to Ms. Dozier to

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1 discuss the review and conclusions for the combined
2 license.

3 MS. DOZIER: Slide 9, please. Upon
4 acceptance of Dominion's COL application, the staff
5 conducted a scoping process which focused on issues
6 that were deferred or unresolved in the ESP and on any
7 new and significant information with respect to the
8 issues that were resolved at the ESP. As the
9 applicant has stated, Dominion's environmental report
10 was likewise focused on issues not evaluated or
11 resolved in the ESP and on new and significant
12 information.

13 An audit was conducted where the staff
14 gathered information for its independent evaluation
15 for the COL review, and evaluated the applicant's
16 process for identifying new and significant
17 information for resolved issues. The environmental
18 standard review plan includes guidance for a COL
19 application referencing an ESP, and aids the staff in
20 determining whether or not information is new and
21 significant.

22 For information to be significant for the
23 purposes of including in the COL SEIS, it must be
24 material to the issue being considered; that is, it
25 must have the potential to affect the staff's finding

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1 or conclusions from the ESP EIS. After completion of
2 the audit, the staff identified areas where additional
3 information was needed to complete its review, and
4 submitted requests for additional information to the
5 applicant.

6 The staff also conducted its own
7 independent search for new and significant information
8 concerning issues resolved in the ESP EIS. The
9 process included, but was not limited to, contacting
10 applicable federal, state, tribal and local agencies.
11 In particular, the staff contacted the Virginia
12 Department of Historic Resources, the Virginia
13 Department of Environmental Quality, Virginia
14 Department of Game and Inland Fisheries, U.S. Fish and
15 Wildlife Service, U.S. Army Corps of Engineers and 17
16 state and federally recognized Indian tribes in order
17 to gather relevant information.

18 Slide 10, please. Issues that were
19 deferred or unresolved during the ESP review were
20 evaluated by Dominion in its environmental report and
21 reviewed by the staff. Of particular note are the
22 staff's evaluation of the need for power, alternative
23 energies, alternative system designs, additional
24 systems design alternatives and severe accident
25 mitigation alternatives.

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1 The key new information for resolved
2 issues provided by Dominion during the staff's review
3 of the COL application included additional project
4 elements not evaluated during the ESP. This included
5 the need for additional transmission lines, newly
6 acquired property to support construction activities
7 and the need to transport large components to the
8 site.

9 It is important to note that because the
10 suitability of the site is the central determination
11 made in an ESP, the COL supplement does not contain
12 the discussion of alternative sites. While
13 alternatives sites were required to be examination in
14 the ESP EIS, by rule they are not reconsidered at the
15 COL stage.

16 Slide 11, please. This slide shows an
17 overview of all the review areas covered by the ESP
18 EIS and the COL SEIS. The areas which were resolved
19 during the ESP are shown in black font. Those areas
20 which were deferred or for which some portions were
21 unresolved at the ESP stage are shown in yellow.

22 For those areas resolved during the ESP
23 stage, with the exception of alternative sites the
24 staff determined whether new and significant
25 information was identified and found that no impact

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1 levels would be changed from the ESP EIS. For those
2 issues deferred or unresolved during the ESP, the
3 staff determined those impact levels were small.

4 The staff determined that there is a need
5 for the baseload power, which will be produced by the
6 new unit, by the proposed new unit, and that there are
7 no environmentally preferable alternative energies or
8 alternative systems.

9 Slide 12, please. The draft COL was
10 issued in December 2008. The staff held a public
11 comment meeting in February 2009 and collected
12 comments on the draft SEIS. Staff's consideration of
13 comments are included in Appendix E of the final COL
14 SEIS, which was issued on March 24th, 2010.

15 Slide 13, please. 10 C.F.R. 51.92
16 requires the staff to prepare a supplement to a final
17 EIS if there are substantial changes in the proposed
18 action that are relevant to environmental concerns, or
19 if there are new and significant circumstances or
20 information relevant to environmental concerns that
21 bear on the proposed action or its impacts.

22 The staff is also directed to prepare a
23 supplement if it determines that it serves the purpose
24 of NEPA to do so. Since the publication of the COL
25 SEIS, the staff has remained aware of any new

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1 information that would require that a supplement to
2 the SEIS be prepared.

3 For example, the staff was preparing a
4 supplement due to Dominion's change in reactor design
5 to the USAPRW, a design not considered in the ESP PPE.
6 But the plans to supplement were withdrawn when
7 Dominion reverted back to the ESBWR design.

8 Slide 14, please. There is an established
9 process that the Office of New Reactor staff uses to
10 determine whether new information warrants a
11 supplement to a new reactor EIS. The staff has
12 followed that process in the time since the
13 publication of the COL SEIS to determine whether a
14 supplement to that document is warranted, and that
15 process is presented here.

16 For those reviews where there is an
17 anticipated delay between the publication of the EIS
18 and the mandatory hearing, the staff follows the
19 office process for identifying new information that
20 would need to be considered for its potential to be
21 significant to the previous evaluations, meaning
22 whether the new information would present a seriously
23 different picture of the environmental landscape.

24 The staff considers the new information
25 and in some cases will formally evaluate the new

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1 information. The staff then makes a determination as
2 to whether the new information warrants that a
3 supplement be prepared.

4 Slide 15, please. Part of the staff's
5 process for identifying new information included
6 interactions with other agencies. The staff became
7 aware of new listings for endangered species in the
8 project area. This necessitated additional
9 consultations with both the National Marine Fisheries
10 Service and the U.S. Fish and Wildlife Service.

11 These consultations have concluded, and
12 both the National Marine Fisheries Service and the
13 U.S. Fish and Wildlife Service have concurred with the
14 staff's determination that the project is not likely
15 to affect any federally listed species under each of
16 their respective jurisdictions. Therefore, the staff
17 has determined that new listings of endangered species
18 does not warrant a supplement to the COL/SEIS.

19 The staff has similarly identified and
20 considered other new information. In addition,
21 Dominion has likewise remained aware of new
22 information which could have the potential to warrant
23 a supplement. The staff audited Dominion's process
24 for identifying new information and reviewed the new
25 information that had been identified which Dominion

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1 considered.

2 The staff found Dominion's process
3 adequate and concluded that none of the new
4 information identified warranted a supplement.
5 Therefore, based on this consideration and the new
6 information identified since the publication of the
7 COL SEIS, the staff determined that a supplement to
8 the COL SEIS was not warranted.

9 Slide 16, please. In summary, the
10 environmental impacts for most resource areas are
11 small. None of the alternative energy sources or
12 system designs would be environmental preferable, and
13 new information did not affect these conclusions. As
14 stated in the COL SEIS, the staff recommendation
15 related to the environmental aspects of the proposed
16 action is that the COL should be issued.

17 The information supporting the
18 recommendation comes from the North Anna 3 COL
19 environmental report, consultation with federal,
20 state, tribal and local agencies, the staff's own
21 independent review and the staff's consideration of
22 comments received during the public scoping process
23 and the comment period on the draft COL SEIS and the
24 assessment summarized in the final SEIS. This
25 concludes the presentation.

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1 CHAIRMAN SVINICKI: Well thank you to both
2 the Dominion and NRC staff environmental panelists for
3 those presentations.

4 I will begin the questioning for this
5 panel, and I have two questions, both of which I'm
6 going to direct in the first instance to the NRC
7 staff, so I would ask that they stay in position in
8 front of their microphones.

9 The first is about the staff's response to
10 Prehearing Question 27. In that response, the staff
11 discussed the two different standards that the staff
12 utilizes for considering new and significant
13 information, one for preparing the supplement to the
14 ESP EIS at the COL stage, which has potential to
15 effect the findings or conclusions, and one for
16 supplementing the SEIS for the COL. That standard is
17 "provide a seriously different picture."

18 At a very high level, could the staff
19 please comment on how it views the two standards as
20 being the same or fundamentally different, on whether
21 or not it makes sense or what impact it has to have
22 the two different standards, and given the important
23 role that these supplementation standards have played
24 in previous reviews, would the staff offer any
25 observations about the use of the two standards?

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1 MS. DOZIER: Yes. When we talk about two
2 standards, it's actually the processes that you're
3 thinking about. So in the situation where you are
4 doing a COL, you're doing your SEIS and you're
5 referencing the ESP, the decision has already been
6 made to prepare a supplement. It's already been
7 triggered by the regulation.

8 So therefore you are determining what
9 you're going to look at during -- for the resolved
10 issues. The COL SEIS will automatically fully review
11 any deferred issue or unresolved. So you're basically
12 talking about only those issues that were resolved at
13 the ESP stage. And therefore so what we do then is
14 -- and that starts with the applicant's environmental
15 report. They then look for anything that is
16 potentially significant in terms of -- that can
17 potentially change the findings of the ESP EIS.

18 For the second situation, you have
19 completed your supplement and then you're just making
20 sure that the COL SEIS for in this case North Anna,
21 you are making sure that the supplement that you have
22 prepared remains valid, that the evaluations remain
23 valid and therefore you do a look for potentially
24 significant.

25 But what would trigger a supplement is the

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1 different, is the difference here. You're looking for
2 what would trigger a supplement, which would be
3 something that would present a seriously different
4 picture of the environmental landscape. So the
5 processes that you are actually using are the same,
6 but you're doing -- one thing you're deciding what you
7 discuss in a supplement that you're already preparing;
8 in the second case what would trigger a new
9 supplement.

10 CHAIRMAN SVINICKI: Okay. Thank you for
11 that. I think that's very helpful. My second
12 question is in its response to Prehearing Question 30,
13 the staff notes that changes in the ESBWR design
14 certification would not affect the SAMA analysis, and
15 this is the staff's response. "In part due to the
16 significant margin that exists between the total
17 averted cost and the lowest SAMA cost."

18 Could the staff please describe the
19 magnitude of this "significant margin" in very general
20 terms?

21 MS. DOZIER: Yes. That question is best
22 directed to the technical staff, so I'm going to ask
23 Don Palmrose if he would come to the podium.

24 CHAIRMAN SVINICKI: Okay, thank you, and
25 if you could introduce yourself, your affiliation and

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1 then indicate whether or not you've been sworn in.

2 MR. PALMROSE: Dr. Donald Palmrose, senior
3 reactor engineer, Office of New Reactors. I am a
4 sworn witness.

5 CHAIRMAN SVINICKI: Okay, thank you.

6 MR. PALMROSE: In the case of the ESBWR
7 design's SAMA evaluation, as was put forward in the
8 design certification portion of the review, the lowest
9 cost alternative that was considered was -- had a
10 value of \$1 million. And so in going through and
11 looking at the situation for the North Anna, of
12 putting that reactor at that site, the total averted
13 cost would come out to a much lower value.

14 And so even though at the COL stage for
15 the supplemental EIS we came up with one set of values
16 for that total averted cost, intervening time has
17 changed with the design certification being finalized,
18 plus updated information regarding the site that then
19 changed the values. So it increased the total averted
20 cost for the site, but it still was far below that \$1
21 million lower cost for the alternative.

22 CHAIRMAN SVINICKI: Okay, thank you for
23 that response, and with that, I will turn to
24 Commissioner Baran.

25 COMMISSIONER BARAN: Well thank you all

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1 for your presentations. I think most of my questions
2 are for the staff, so you guys can stay put. One of
3 the changes to the planned project that came after
4 publication of the final supplemental EIS is the
5 addition of the new barge roll-off facility and
6 transport route for large components.

7 This change required the applicant to
8 apply for a new Section 404 permit from the Army Corps
9 of Engineers, led to new commitments related to
10 Section 106 of the National Historic Preservation Act,
11 and was a topic of new NRC consultations with the Fish
12 and Wildlife Service and National Marine Fisheries
13 Service under the Endangered Species Act.

14 The staff has proposed including several
15 of these commitment as license conditions in the
16 environmental protection plan. So this change
17 generated a large amount of new information on the
18 project. Can you walk us through how the staff
19 determined that all this new activity and information
20 did not require supplementing the EIS?

21 MS. DOZIER: I'm going to call the
22 technical staff to help me out with that, but first I
23 think you said something about apply for a new permit,
24 that --

25 COMMISSIONER BARAN: Section 404 permit?

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1 MS. DOZIER: Right, the Section 404, the
2 original permit was -- covered that.

3 COMMISSIONER BARAN: Oh, it did?

4 MS. DOZIER: Yes, yes. So it was, it did,
5 it was the Corps permit that was issued in 2011
6 covered the entire project. It was -- and that was a
7 portion of it.

8 COMMISSIONER BARAN: Okay. Well thank you
9 for that.

10 (Off mic comments.)

11 MS. DOZIER: Yes. It had not been -- it
12 had not been -- the permit had not been obtained in
13 the EIS, right? I'm sorry.

14 COMMISSIONER BARAN: It was subsequent to
15 the EIS.

16 MS. DOZIER: Right, yes, yes.

17 COMMISSIONER BARAN: Okay.

18 MR. KUGLER: Right, but these portions
19 were addressed in the supplemental EIS. These did not
20 -- we were aware of them when we wrote the
21 supplemental EIS. So we were already writing a
22 supplement, and they were already included, just to be
23 clear.

24 MS. DOZIER: It was additional
25 information. We found out additional information. We

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1 knew about -- we knew about the transport of large
2 components. It was -- but we did find out more, more
3 additional details as the project matured, right.

4 So that -- I just wanted to make sure that
5 was, before I -- but we did do a -- but as those
6 additional information became available after the
7 SEIS, we did do an evaluation. So I'm going to ask
8 the technical staff to -- Peyton Doub, to come to the
9 stand and he can elaborate on the details of that
10 information.

11 CHAIRMAN SVINICKI: And again, please
12 introduce yourself, give your association or
13 affiliation with the project and indicate whether
14 you've been sworn.

15 MR. DOUB: My name is Peyton Doub. I am
16 a terrestrial ecologist and wetlands scientist,
17 environmental scientist with the Office of New
18 Reactors, and I have been sworn.

19 CHAIRMAN SVINICKI: Thank you.

20 MR. DOUB: The staff did a complete update
21 of its endangered species, its review of impacts on
22 endangered species through a supplemental biological
23 assessment that starting with the initial biological
24 assessment that was prepared for the ESP, the staff
25 visited the site, performed research, met with the

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1 Fish and Wildlife Service, met with NMFS, the National
2 Marine Fisheries Service, compiled information on all
3 of the affected species, including several newly
4 listed species that had occurred since the ESP,
5 including the northern long-eared bat and sensitive
6 joint-vetch, and the Chesapeake, the population
7 segment of the Atlantic sturgeon.

8 The staff then prepared an updated
9 biological assessment for the Atlantic sturgeon, and
10 a supplemental biological assessment for the Fish and
11 Wildlife Service species for the project, including
12 all of the species that were addressed at the ESP
13 stage, bringing the information up to date for like
14 the ten years plus intervening period, plus addressing
15 the newly-listed species including the northern long-
16 eared bat and the sensitive joint-vetch, and
17 addressing an action area that included not only the
18 regional activity through recovery in ESP, the
19 additional activities that were covered at the COL
20 stage, plus we brought all the information up to date
21 on the Walkerton roll-off facility and the large
22 component transport route, and we expanded the
23 analysis to also include a 24.5 mile segment of the
24 Mattaponi River, where there was a question about
25 potential barge, potential effects of the barge

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1 traffic on sensitive joint-vetch, a threatened plant
2 species.

3 The staff concluded for all these species
4 that there would either be no effect or that they may
5 affect, but would not likely adversely affect any of
6 these listed species. We received concurrences from
7 both the National Marine Fisheries Services in
8 November of 2016, and the U.S. Fish and Wildlife
9 Service in February of 2017, concluding, fully
10 concluding the Section 7 consultation process under
11 the Endangered Species Act, bringing it fully up to
12 date for the entire project as it currently stands.

13 COMMISSIONER BARAN: Let me -- thank you
14 for that. That's a lot of information. That's really
15 helpful. I get the sense that if I actually ask you
16 to recite from memory the entire supplemental EIS, you
17 could do it. I appreciate that.

18 (Laughter.)

19 COMMISSIONER BARAN: In the staff's
20 written responses to our prehearing questions, the
21 staff stated that because the NRC's Endangered Species
22 Act consultations are now complete as you said, the
23 staff expects that the Army Corps of Engineers will
24 reinstate the Section 404 permit. How confident are
25 you that the Corps of Engineers will reinstate the

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1 permit, and when do you expect this to occur?

2 (Simultaneous speaking.)

3 MR. DOUB: I'll let Tammy answer that
4 question.

5 MS. DOZIER: Right, because I have spoken
6 with them this week. Last week, the NRC sent a letter
7 to the Corps, summarizing, sort of a one-stop shop for
8 them for all of the information on all of our
9 consultations, so that it was all in one document and
10 all the ADAMS ML numbers of all the different things
11 that Peyton has memorized but the Corps has not.

12 And so I spoke with them this week and
13 they are -- they are moving toward reinstating the
14 permit.

15 COMMISSIONER BARAN: Okay. The
16 environmental impact determinations in the EIS assume
17 that the mitigation measures in the Section 404 permit
18 will be implemented. If the Corps of Engineers did
19 not reinstate the Section 404 permit for whatever
20 reason, what effect would that have on the staff's
21 environmental analysis?

22 MS. DOZIER: There are many cases where we
23 -- well first of all, when the environmental analysis
24 in the SEIS, that was -- that predated the Corps'
25 initial issuing of its permit. So often we do look

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1 forward to permit issuances, because we know that
2 before Dominion does do certain activities, they have
3 to receive the permit.

4 So if for whatever reason Dominion does
5 not, you know, receive the permit, then the activities
6 that we relied upon impacts for, those impacts would
7 not occur because the -- we would have made the
8 assumption that the permit would be obtained before
9 they do the permitted the activities that would result
10 in the impacts.

11 COMMISSIONER BARAN: Let me ask -- let me
12 ask a question to clarify, and I understand this is
13 probably a counterfactual situation, because it sounds
14 like the Corps is going to issue the permit. But
15 let's say, you know, you had talked this week to the
16 Army Corps of Engineers and they said you know what?
17 We're not going to reissue the permit. Is that
18 something that would trigger a supplement or what
19 effect would that have on our process if for whatever
20 reason they were not going to reissue the permit?

21 MS. DOZIER: Well, I would assume it's a
22 temporary thing because, you know, they're eventually
23 whatever reason they are not issuing it now, they
24 would -- they would work out with Dominion and then
25 Dominion would proceed to, you know, take care of

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1 whatever the problem is. As in many applicants do
2 with Corps of Engineers when there's issues in getting
3 permits, you work out the wetland mitigations or
4 whatever.

5 MR. KUGLER: If I can add to this, so
6 without a Corps permit, they could not proceed with
7 the project. They have to have the Corps permit. So
8 if they don't have one, the project doesn't proceed.
9 If the current permit were cancelled by the Corps,
10 eventually if the project were going to go forward at
11 all, they would have to have another Corps permit.

12 It is likely that the conditions in such
13 a permit would be similar. The Corps is fairly
14 consistent in the way they operate. But we -- when we
15 do our evaluations under the National Environmental
16 Policy Act, what we have to determine is that the
17 mitigation is reasonably foreseeable. It's never
18 certain for something that's going to be future like
19 this.

20 If it's going to be a Corps permit, we
21 consider that reasonably foreseeable. So we do depend
22 on it in the sense that we expect that the Corps will
23 properly manage the resources for which they're
24 responsible.

25 COMMISSIONER BARAN: Okay. Thank you. I

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1 have another question about when it's necessary to
2 supplement an EIS. The need for power section of the
3 final supplemental EIS is based on the environmental
4 report filed in 2007, and it concludes that there will
5 be a need for power from North Anna in 2017.

6 In its responses to prehearing questions,
7 Dominion stated that it provided the staff with an
8 updated analysis in 2013 that was based on new
9 information. But the staff found that this new
10 information did not require a supplemental EIS.
11 Dominion mentioned earlier that it developed a 2016
12 integrated resource plan. Has the staff evaluated
13 that plan in the context of the need for power
14 analysis?

15 MS. DOZIER: They have, and would you like
16 an explanation?

17 COMMISSIONER BARAN: Sure.

18 MS. DOZIER: Okay. I will call Mr.
19 Mussatti to the stand to discuss his evaluation.

20 CHAIRMAN SVINICKI: And please state your
21 name, your association with the review and whether or
22 not you've been sworn in as a witness.

23 MR. MUSSATTI: My name is Daniel Mussatti.
24 I'm the senior economist for the RENV Branch of DSEA,
25 and I have been sworn in.

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1 CHAIRMAN SVINICKI: Thank you.

2 MR. MUSSATTI: We, as part of our standard
3 operating procedures, continue to look at new
4 information as it comes in, from the day that we
5 published Environmental Impact Statement until the
6 time we get done with a meeting such as this one here.
7 That means that every year, when the new IRP, the
8 Individual -- the development plan for the power
9 plant, every year that one of those comes out we take
10 a look at it again.

11 Andy looks at it from the standpoint of is
12 there some new alternative generating capacity out
13 there that we might need to consider, and I look at it
14 from the standpoint of is there a new story being told
15 about the need for power? So the question you asked
16 is kind of incomplete in one respect, in that we
17 didn't just look at the 2013 and then the 2016; we
18 looked at the ones that came out every year.

19 The latest one that we looked at was the
20 2016 that came out oh, I think it was like January
21 when it came out in fact, if I remember correctly.
22 And in 2015, we did an update of the need for power
23 under new and significant information and put together
24 a report on that.

25 Basically, the story is the same that's

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1 told by all of them. Dominion, when they developed
2 their development plans for the future, they look at
3 potential things that could be installed to meet new
4 demand.

5 But they caution inside their IRP that
6 nothing that is in here is guaranteed that it's going
7 to happen, and things that aren't in here are not
8 guaranteed that they're not going to happen. So it
9 kind of leaves it open, but they are presenting
10 reasonable ways for -- for them to be able to achieve
11 future demand requirements without having any problems
12 with reserves and with potential brownouts and
13 blackouts and these sorts of things.

14 So we've taken a look at it in the same
15 context as them. If they're going to look at it as
16 everything's on the table, then we need to look at the
17 same way. So we've looked at the idea of this is what
18 is available right now.

19 We know what the growth is expected to be
20 out to the future and we compare that difference and
21 say is there room for this nuclear power plant to be
22 a part of that solution, and that answer has not
23 really changed since the first time we did it.

24 COMMISSIONER BARAN: Okay, thank you. I
25 want to ask about one more topic. One of the aspects

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1 of the environmental review that was the subject of a
2 significant number of public comments is the plan to
3 raise the water level of Lake Anna by three inches,
4 and to change downstream river flows to accommodate
5 the hybrid cooling tower for Unit 3.

6 In particular, members of the public
7 expressed concern about how these changes could affect
8 recreational activities on both the lake and river.
9 Between the draft and final supplemental EIS, Dominion
10 and the Commonwealth of Virginia performed a study on
11 potential changes to water levels, and the resulting
12 effects on recreation and ecology.

13 In the final EIS, the staff found that
14 impacts would mostly be small, but that in times of
15 drought, the impact on lake recreation could be
16 moderate at some shallow locations. Can you discuss
17 the basis of the staff's determination that the impact
18 could be moderate, and what mitigation actions
19 Dominion would implement to mitigate these impacts?

20 MS. DOZIER: Would that Dan or Phil?

21 MR. KUGLER: Maybe both.

22 MS. DOZIER: I'm going to ask -- we're
23 going to start out with a hydrologist to talk about
24 how he came up with the hydrology aspect of that. But
25 you asked about recreation, so we may have to switch

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1 gears. Did you want to start off?

2 MR. MEYER: Well, I was hearing recreation
3 a lot. Sorry. My name is Philip Meyer with the
4 Pacific Northwest National Laboratory, in support to
5 NRC.

6 CHAIRMAN SVINICKI: And have you been --

7 MR. MEYER: And I have been sworn.

8 CHAIRMAN SVINICKI: Thank you.

9 MR. MEYER: So I heard a lot of
10 recreation, so I apologize. But if you would just
11 restate your question.

12 COMMISSIONER BARAN: Sure. Can you just
13 walk through the basis for the staff's determination
14 that the impact could be moderate, and what mitigation
15 actions Dominion would implement to mitigate these
16 impacts?

17 MS. DOZIER: To recreation?

18 COMMISSIONER BARAN: Correct.

19 MS. DOZIER: Or to, okay.

20 MR. MEYER: I can talk a little bit about
21 the water levels.

22 COMMISSIONER BARAN: yes.

23 MR. MEYER: And what did associated with
24 that. So my role is mostly water use issues,
25 understanding the hydrology of the lake and the

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1 management of the lake. So those issues were closed
2 at ESP, but we did have a process to look at new and
3 significant information, and one of the significant or
4 one of the new pieces of information that we evaluated
5 the significance of with respect to our conclusions in
6 the COL SEIS was the permit for water use from the
7 VEQ.

8 And relevant to your question, there's a
9 couple of permit conditions in that that affect
10 recreation. One is that they have -- and downstream
11 water use. One is that they have modified the
12 operation of the lake a little bit to allow for a
13 reserve when the water levels get down low. They want
14 to have a reserve so that they are able to discharge
15 an additional 24 cfs from the dam, to increase the
16 flows in the river below the lake.

17 So they hold this in a reserve to affect
18 mainly downstream water supply issues, but there might
19 be some recreational issues there too. The other
20 thing is that in the permit, they have a requirement
21 that there be certain levels of releases on weekends
22 in May and June, and those increased releases. So a
23 minimum of the release from the dam, and that's
24 specifically to address recreational issues.

25 COMMISSIONER BARAN: Okay, and when the

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1 staff made the finding that during drought conditions,
2 the impacts could be moderate at some shallow
3 locations, did the staff take into effect the expected
4 effects of climate change in the duration and
5 intensity of droughts?

6 MR. MEYER: That's a little bit of a
7 difficult question. So from a water use perspective,
8 we did look at the impact of climate change, and we
9 reviewed the most recent National Climate Assessment.
10 That's the basis for the staff's, because we're not
11 climate experts. We review the GCRP reports for --
12 the most recent National Climate Assessment was in
13 2014, so it was subsequent to this COL SEIS.

14 We did review that for information and to
15 see how it compared to what the staff had relied on in
16 the COL SEIS. Our review of that, there's some -- the
17 evidence is that precipitation overall is expected to
18 increase, and that temperatures are going to increase.
19 So that would increase the evaporation, which is a
20 significant sink from the lake and also affects the
21 operation of the plant.

22 We looked at that and we also looked at
23 the evidence in the record for past occurrence of
24 drought. We looked at the National Climate Assessment
25 to see if they had any information about the

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1 occurrence of drought. There really isn't any. They
2 expect water availability in the region to decrease
3 slightly, I think it was five percent in the report.
4 So overall, the evidence didn't suggest that drought
5 would be more frequent. There's still an uncertainty
6 that we really couldn't make a decision one way or the
7 other.

8 COMMISSIONER BARAN: Okay, good. Very
9 good. Thank you.

10 CHAIRMAN SVINICKI: Thank you.
11 Commissioner Burns.

12 COMMISSIONER BURNS: Yeah, I have a couple
13 of questions for the applicant, and this goes to some
14 of the consultations and commitments made in response
15 to evaluations of the Endangered Species Act. In
16 response to Prehearing Question 12, you discussed the
17 staff's consultation with the Fish and Wildlife
18 Service under the Endangered Species Act, and with
19 respect to --

20 You noted that it would affect this joint-
21 vetch or sensitive, excuse me, sensitive joint-vetch,
22 populations along the barge transport route that
23 Dominion has sent a letter committing to additional
24 measures for avoiding impacts. Could you generally
25 describe some of the additional measures that Dominion

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1 committed to?

2 MR. BANKS: I'd ask Mr. Miller to go ahead
3 and address that.

4 MR. MILLER: So in December, as was
5 discussed earlier, NRC staff issued a supplemental
6 biological assessment which addressed, among other
7 things, effects on the sensitive joint-vetch from West
8 Point up to Walkerton, Virginia due to barge traffic.
9 Subsequent to that, it became clear there were still
10 some concerns with respect to effects on the vetch
11 during those barge, those barge transits.

12 So Dominion drafted a letter, which we
13 sent to the NRC, which committed to additional
14 measures to protect the vetch. The many pieces of
15 that are we committed to submitting a report to the
16 Fish and Wildlife Service no later than six months
17 prior to initiating barge transits.

18 In that report, we would ask for
19 concurrence from the Fish and Wildlife Service on the
20 measures that we'd be taking to avoid, minimize or
21 mitigate effects on the vetch.

22 COMMISSIONER BURNS: Okay, thanks.
23 Another aspect relates to the consultations under
24 Section 106 of the National Historic Preservation Act,
25 and the staff discussed in its answers condition and

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1 the combined license relating -- minimizing impacts on
2 archaeological sites, and it commits Dominion to
3 implementing a ground disturbance plan. Could you,
4 again it could be a high level, describe what the
5 ground disturbance plan is?

6 MR. BANKS: Sure. The ground disturbance
7 plan that we have in place and as a result of
8 consulting with SHPO ourselves and also working with
9 NRC, involves a matter of understanding the kinds of
10 impacts that could be affected on the shoreline, that
11 we would commit to understanding the type of soils and
12 other kinds of vegetation that may be on that barge
13 roll-off facility, and we also have procedures in
14 place that says if there is something else that
15 becomes an inadvertent discovery during the process of
16 ground disturbance, we have notification protocols in
17 place.

18 COMMISSIONER BURNS: Okay. So that type
19 of discovery might be some of an archaeological find
20 or something like that?

21 MR. BANKS: Correct.

22 COMMISSIONER BURNS: Given that we say
23 North Anna probably 1 and 2 was the first nuclear
24 power plant site I ever went to and it was 1978, so
25 Unit 2 was not yet operating although -- and I also

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1 recall seeing, you know, the parts of the construction
2 for Unit 3 and 4. Now I understand Unit 3 from the
3 visit I made about two years ago. This unit, the
4 proposed Unit 3 we're talking about now is really not
5 on the same -- it's not in the same locales where the
6 3 and 4 were.

7 So it's interesting to me. So what don't
8 you -- what hasn't been disturbed in that area since
9 obviously in 3 and 4, when they were being potentially
10 built in the 1970's and the early 80's, you know,
11 obviously disturbed. What's unknown? What's the
12 unknown frontier, if you will in terms of --

13 MR. BANKS: That's a great question, and
14 I believe I understand what you're asking. But to be
15 honest with you, the entire site has been evaluated by
16 SHPO as the area of potential effects.

17 COMMISSIONER BURNS: Okay.

18 MR. BANKS: So while you might be thinking
19 about the abandoned Units 3 and 4 in one particular
20 area of the North Anna site, and the proposed Unit 3
21 in another area of the site, the entire site has been
22 disturbed.

23 COMMISSIONER BURNS: Okay, all right,
24 thank you.

25 MR. BANKS: And has been evaluated by

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1 SHPO.

2 COMMISSIONER BURNS: Okay, thanks. Let me
3 turn to staff, the staff witnesses, both Ms. Dozier
4 and Mr. Kugler, you touched on the differences in
5 terms in environmental evaluation in the context of
6 pre-2007, when the Commission adopted changes to focus
7 its review on -- focus its NEPA review in terms of
8 what it views in terms of its obligations.

9 What practical significance does that have
10 today, and I guess what practical significance, if
11 any, what if a COL were to be issued? Does that
12 difference in will you really have any difference once
13 the COL is issued?

14 (Off mic comments.)

15 MS. DOZIER: It basically has to do with
16 where the impacts are discussed in the EIS, in terms
17 of what defines construction and pre-construction.
18 I'm assuming you're talking about the pre-LWA
19 rulemaking.

20 COMMISSIONER BURNS: Right.

21 MS. DOZIER: Okay. So in most of the
22 environmental impact statements that you have been
23 looking at thus far that came -- actually came after
24 North Anna, you have seen a lot of discussion of
25 things being -- first of all, they were -- most of

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1 them were cooperating with the Corps of Engineers,
2 which in this case we were not.

3 But you saw a lot of, you know, the NRC's
4 portion of a particular activity. It was all
5 considered all under the same type of thing. We
6 didn't parse between what our NRC regulated and not
7 regulated.

8 COMMISSIONER BURNS: Okay, but I think it
9 was actually Mr. Kugler referred to it, in terms of
10 some restrictions on what the applicant could do today
11 with respect to site preparation?

12 MS. DOZIER: Oh, okay that.

13 COMMISSIONER BURNS: So that's what I'm
14 trying to understand.

15 MR. KUGLER: Okay. So actually what I was
16 referring to there, the way the rule changed, under
17 the old rule we could authorize some activities which
18 were typically limited work authorization type
19 activities, where we could actually authorize it under
20 the early site permit itself.

21 So there would be no LWA; there would just
22 be an early site permit, and we did that with North
23 Anna. Under the new rule, you cannot do that. The
24 ESP is simply a siting permit, and if they wanted to
25 do any of those LWA-type activities, they would need

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1 a separate LWA.

2 COMMISSIONER BURNS: I see, okay. I think
3 I understand now.

4 MR. KUGLER: Okay.

5 COMMISSIONER BURNS: And finally as I
6 understand it, the early site permit for North Anna
7 actually looked at the possibility of up to 45 --
8 well, from 4,500 to 9,000 megawatts thermal, which
9 essentially assumes a potentially two unit site. So
10 then I guess what I'd take from that, it's fair to say
11 that some of the impacts predicted from operation of
12 a proposed single unit would be, expect to be less
13 significant or severe, if you will, than impacts that
14 were evaluated under the early site permit.

15 I realize it may not be. It's not
16 necessarily a purely mathematical proportion
17 reduction. But if there's any light you could shed on
18 that, I appreciate it.

19 MS. DOZIER: Well yes. It was -- and in
20 fact I think if you read in some of the evaluations,
21 the reviewer would state impacts are smaller for the
22 COL because not as big -- not as large a footprint.
23 Land use, I think, would be a good example of the
24 impacts would be smaller than the ESP would have
25 predicted, in terms of the onsite impacts.

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1 COMMISSIONER BURNS: Okay, okay, thanks.
2 Thanks, Madam Chairman.

3 CHAIRMAN SVINICKI: Okay. I would now
4 like to reset the tables for the applicant and the
5 staff for those witnesses who will join in the closing
6 statements. I'll just provide a moment here for the
7 tables to be reset.

8 (Pause.)

9 CHAIRMAN SVINICKI: Okay. We will begin
10 with a closing statement by the applicant.

11 MR. MITCHELL: Chairman, Commissioners,
12 first I would like to thank everyone that has made
13 this mandatory hearing possible and so successful. I
14 am thankful that we have such a professional team here
15 at Dominion that has worked for many years to support
16 the staff and their thorough safety and environmental
17 review, which I believe have generated complete and
18 comprehensive findings.

19 I would like to thank our colleagues at GE
20 Hitachi, Bechtel, Fluor and all the contractors for
21 their support and contribution to our COL application.
22 Finally, I would like to thank the Commission for
23 having us here today and for the time and effort that
24 you devoted to this review. We appreciate your
25 thoughtful and challenging questions, both during and

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1 before the hearing, and we look forward to answering
2 any remaining questions you may have.

3 As presented in our application in this
4 hearing today, the ESBWR is an excellent design that
5 has been demonstrated to be safe and an appropriate
6 technology for the North Anna site. North Anna 3 is
7 a valuable option to meet our growing energy needs and
8 in addition would provide a baseload carbon-free
9 resource which requires minimal land use.

10 Nuclear power offers proven operational,
11 economic and environmental benefits, and this project
12 is an important resource for our customers. As shown
13 through history, forecast change over time and fuel
14 diversity is a key component to any energy plan. Our
15 customers enjoy some of the lowest rates in the United
16 States due in large part to the safe, reliable, clean
17 and dependable nuclear units at Surry and North Anna.

18 The information that has been presented
19 throughout this hearing demonstrates the completeness
20 of our application and the staff's review, which shows
21 that we have satisfied the standards for issuance of
22 the COL.

23 We agree with the NRC staff's conclusion
24 that its review has been adequate to support the
25 required findings by the Atomic Energy Act, NRC

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1 regulations and the National Environmental Policy Act
2 for issuance of the COL. We look forward to the
3 Commissioners' decisions.

4 CHAIRMAN SVINICKI: Thank you. I now
5 invite the NRC staff to provide their closing
6 statement.

7 MS. ORDAZ: Thank you, Chairman and
8 Commissioners. For the record, my name is Vonna
9 Ordaz. With me on this panel are Frank Akstulewicz
10 and Anna Bradford.

11 Again, we thank you for the opportunity to
12 speak today. Through its SECY paper supporting this
13 mandatory hearing, its final safety evaluation report,
14 its final supplemental Environmental Impact Statement
15 and in our presentations today, we have provided an
16 adequate basis for making the necessary findings set
17 forth in 10 C.F.R. 52.97, and 10 C.F.R. 51.107, to
18 support the issuance of the combined license for North
19 Anna 3.

20 In this hearing, we have described why the
21 staff's review of the North Anna 3 combined license
22 application has been both thorough and complete. The
23 review is appropriately focused by the finality
24 afforded to issues within the scope of the ESBWR
25 design certification. The staff has demonstrated the

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1 completeness of our review in part through its
2 reliance on staff guidance and interactions with the
3 ACRS.

4 The ACRS agrees with the staff's
5 conclusion that the combined license for North Anna 3
6 should be approved. Today, we highlighted certain
7 aspects of our safety and environmental reviews. The
8 safety panel highlighted the staff's site-specific
9 seismic evaluation. During the staff's environmental
10 panel, we highlighted our process for compliance with
11 the NRC's National Environmental Policy Act
12 regulations specified in 10 C.F.R. Part 51 and other
13 applicable environmental statutes, and appropriate
14 interactions with other government agencies and the
15 public.

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

25 The applicant understands the necessity of

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

7 I would note that the Commission raised a
8 question for the staff during the course of the
9 hearing, for which we said we'd provide additional
10 information on for the record. We'll provide the
11 supplemental response in accordance with the
12 Commission's schedule order.

13 The staff appreciates the opportunity to
14 present to the Commission today the results of our
15 thorough and complete review. I would also like to
16 personally thank each of the agency staff members and
17 their supervisors that contributed to the North Anna
18 3 COLA.

19 Since I arrived in NRO almost a year ago,
20 I've been continually impressed with the caliber of
21 the technical experts, program managers in NRO and
22 their commitment to excellence, and also with our
23 partners across the agency.

24 I would also like to thank Dominion again
25 for their professionalism with our staff over the

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1 years, and we expect to continue our interactions with
2 Dominion as they submit license amendment requests in
3 the future to maintain their license in the coming
4 years. This concludes the staff's presentation.
5 Thank you.

6 CHAIRMAN SVINICKI: Thank you. Before I
7 recognize my colleagues for any closing remarks, I
8 would turn each of them and ask them if they have
9 further questions that they would like to direct to
10 any of the witnesses?

11 COMMISSIONER BURNS: No, none for me.

12 CHAIRMAN SVINICKI: Hearing none, I will
13 recognize first for closing comments Commissioner
14 Baran.

15 COMMISSIONER BARAN: Well thank you. I
16 just want to thank the NRC staff again and all of
17 today's participants for your hard work throughout the
18 review of this application. Your thorough preparation
19 for today's hearing was apparent and is appreciated,
20 so thank you.

21 CHAIRMAN SVINICKI: Thank you.
22 Commissioner Burns.

23 COMMISSIONER BURNS: I'll echo the
24 comments of my colleague, and I appreciate the effort,
25 both of the staff but also the applicant, Dominion.

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1 Everything that went into this preparing, and believe
2 me I know very well that most of the preparation, most
3 of the hard work was not done in this room.

4 It was done in the preparation you did in
5 terms of submitting the application and answering
6 questions, the staff evaluating those answers,
7 evaluating the application and undertaking the
8 environmental review, so I appreciate that.

9 I think also to the applicant, I
10 appreciate the coordination and cooperation that you
11 have with DTE Electric, particularly as we consider
12 this application as one of two applications to come in
13 front of us that reference the ESBWR, and I think that
14 kind of cooperation does the industry -- puts the
15 industry in good stead and also standardization across
16 the fleet as an objective.

17 Again, my thanks for appearing here today
18 and answering our questions and for your testimony and
19 work that went on before today. Thank you.

20 CHAIRMAN SVINICKI: Well, thank you. Let
21 me make it unanimous on behalf of the Commission and
22 add my thanks first to the applicant for the very
23 rigorous and professional defense of the application
24 over the course of the review, and to the NRC staff
25 who presented here today and all who supported getting

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1 to today.

2 As I sometimes remark in these mandatory
3 hearings, if the public were to view this as the sum
4 total, they might leave with a little bit of a curious
5 view at the high level look. The truth is, and I know
6 my colleagues the same as I, we look at the responses
7 to the prehearing questions and the abundance of
8 information in the written record that leads up to the
9 mandatory hearing, that if approved will lead to
10 issuance of the license should that be authorized
11 going forward.

12 There is -- you need not look at the
13 entirety of that record, even if you look at it on a
14 sampling basis. The searching and exhaustive analysis
15 and examination of issues is evident even if you just
16 go in and do a sampling of various issue areas. So
17 this to anyone who thinks that this was the sum total
18 of our interest in this licensing matter, it is not
19 and they are welcome to review the available record,
20 if they care to validate that.

21 I also want to specifically thank the NRC,
22 the arms of the NRC that support the Commission in
23 conducting this mandatory hearing, the Office of
24 Commission Appellate Adjudication, the Office of the
25 Secretary of the Commission, and again as was noted by

NEAL R. GROSS

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1 Vonna, the many, many administrative professionals
2 throughout the agency, without whose logistical
3 support it would not be possible to move all the paper
4 information technology that we have to move to get to
5 conduct this hearing today.

6 So in closing, and for the information of
7 the parties, the deadline for responses to any post-
8 hearing questions will be April 6th, 2017 unless the
9 Commission directs otherwise. The Secretary plans to
10 issue an order with post-hearing questions by March
11 30th. The deadline for transcript corrections will be
12 April 4th, and the Secretary plans to issue an order
13 requesting proposed transcript corrections by March
14 28th.

15 As I mentioned this morning, the
16 Commission expects to issue a final decision promptly,
17 with due regard to the complexity of the issues and
18 with that, the hearing is adjourned. Thank you.

19 (Whereupon, the above-entitled matter went
20 off the record at 2:08 p.m.)
21
22
23
24
25

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
DOMINION VIRGINIA POWER)
) Docket No. 52-017-COL
)
(North Anna Power Station, Unit 3))
)
(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 Herald M. Speiser]
Office of the Secretary of the Commission

Dated at Rockville, Maryland,
this 28th day of March, 2017