Eugene S. Grecheck
Vice President
Nuclear Development

Dominion Energy, Inc. • Dominion Generation
Innsbrook Technical Center
5000 Dominion Boulevard, Glen Allen, VA 23060
Phone: 804-273-2442, Fax: 804-273-3903
E-mail: Eugene.Grecheck@dom.com

Dominion®

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. NA3-09-040R
Docket No. 52-017
COL/BCB

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 044
(FSAR CHAPTERS 3 AND 12)

On November 19, 2009, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA). The letter contained two RAIs. The responses to the RAIs are provided in Enclosures 1 and 2:

- RAI Question 12.03-12.04-13 Design Objectives and Guidance in RG 4.21
- RAI Question 03.11-8 Operational Aspects of the EQ Program

The information provided in the RAI responses will be incorporated into a future submission of the North Anna Unit 3 COLA, as described in the Enclosures.

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck

D089
NRO

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 4th day of February, 2010
My registration number is 7173057 and my
Commission expires: August 31, 2012

Wanda K. Marshall
Notary Public

WANDA K. MARSHALL
Notary Public
Commonwealth of Virginia
7173057
My Commission Expires Aug 31, 2012

Enclosures:

1. Response to NRC RAI Letter No. 044, RAI Question No. 12.03-12.04-13
2. Response to NRC RAI Letter No. 044, RAI Question No 03.11-8

Commitments made by this letter:

1. The information provided in the RAI responses will be incorporated into a future submission of the North Anna Unit 3 COLA, as described in the Enclosures.

cc: U. S. Nuclear Regulatory Commission, Region II
C. P. Patel, NRC
J. B. Jessie, NRC
J. T. Reece, NRC

ENCLOSURE 1

Response to NRC RAI Letter No. 044

RAI Question 12.03-12.04-13

NRC RAI 12.03-12.04-13

In response to RAI 12.03-12.04-8, Dominion stated that, "if the ESBWR DCD, Rev. 5, is revised to include additional COL Items for FSAR Section 12.3, the COLA will be updated to address the specific COL Items." In Rev. 6 of the ESBWR DCD, Section 12.3.1.5 was added to address the ESBWR's compliance with 10 CFR 20.1406. In addition, GEH added COL Item 12.3-4-A, which states that the COL Applicant will address the operational and post-construction objectives of Regulatory Guide 4.21.

Please clarify compliance with 10 CFR 20.1406 to include a mark-up of the FSAR indicating how Dominion will address the design objectives and guidance provided in Regulatory Guide 4.21. The FSAR should be modified to include the following:

1. *A commitment stating how Dominion will address COL Item 12.3-4-A.*

2. *A description of the operational programs and procedures (similar to the list of operational programs and procedures contained in Section 12.3.1.5.2 of Tier 2 of the ESBWR DCD) that will be implemented by Dominion to meet the requirements of 10 CFR 20.1406.*

3. *A commitment to follow the guidance contained in NEI 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination."*

Dominion Response

North Anna Unit 3 will comply with the requirements of 10 CFR 20.1406, consistent with the guidance in Regulatory Guide 4.21 and NEI 08-08.

Dominion will revise the FSAR to address the issues specified in this RAI.

Proposed COLA Revision

FSAR Section 12.3 will be revised as shown in the attached markup.

Markup of North Anna COLA

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

12.3 Radiation Protection

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

12.3.1.3 **Radiation Zoning**

Replace the last sentence with the following.

STD COL 12.3-3-H Access to "Very High Radiation Areas" is discussed in Section 12.5.

12.3.1.5.2 **Operational/Programmatic Considerations**

Replace the DCD section with the following

STD COL 12.3-4-A Programs and procedures are implemented consistent with NEI 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination," to meet the operational and post-construction objectives of Regulatory Guide 4.21 and the requirements of 10 CFR 20.1406. These objectives include:

- Periodically reviewing operational practices to ensure operating procedures reflect the installation of new or modified equipment, personnel qualification and training are kept current, and facility personnel are following the operating procedures
- Facilitating decommissioning by maintaining records relating to facility design and construction, facility design changes, site conditions before and after construction, contamination events, and results of radiological surveys
- Development of a conceptual site model (based on site characterization and facility design and construction) that aids in the understanding of the interface with environmental systems and the features that control the movement of contamination in the environment
- Evaluating the final site configuration after construction to assist in preventing the migration of radionuclides offsite via unmonitored pathways
- Establishing and performing an onsite contamination monitoring program along the potential pathways from the release sources to the receptor points

12.3.4 Area Radiation and Airborne Radioactivity Monitoring Instrumentation

Replace the last bullet with the following.

STD COL 12.3-2-A

The radiation instrumentation that monitors airborne radioactivity is classified as nonsafety-related. Airborne radiation monitoring operational considerations, such as the procedures for operation and calibration of the monitors, as well as the placement of the portable monitors, are discussed in Section 12.5.

12.3.7 COL Information

12.3-2-A Operational Considerations

STD COL 12.3-2-A

This COL item is addressed in Section 12.3.4.

12.3-3-H Controlled Access

STD COL 12.3-3-H

This COL item is addressed in Section 12.3.1.3.

12.3-4-A Compliance with 10 CFR 20.1406

STD COL 12.3-4-A

This COL item is addressed in Section 12.3.1.5.2.

12.3.8 References

12.3-201 Nuclear Energy Institute, Generic FSAR Template Guidance for Life Cycle Minimization of Contamination, NEI 08-08A, Rev. 0

12.4 Dose Assessment

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

12.4.7.1 Annual Doses to Construction Workers

NAPS SUP 12.4-1

Doses to construction workers were addressed in ESP-ER Section 4.5 and associated impacts were resolved as SMALL in FEIS Section 4.9.

The ESP-ER analysis has been reviewed to evaluate the following more recent information:

- The current locations and readings for TLDs located closest to the Unit 3 site.
- The most recent effluent release data for Units 1 and 2 as reported in the 2006 Annual Radioactive Effluent Release Report (Reference 12.4-201).

ENCLOSURE 2

Response to NRC RAI Letter No. 044

RAI Question 03.11-8

NRC RAI 03.11-8

The ESBWR Design Control Document (DCD) describes the program for the initial environmental qualification (EQ) of electrical and mechanical equipment within the EQ program for nuclear power plants applying the ESBWR reactor design. An NRC audit at GEH offices in July 2009 found that the ESBWR DCD does not address the transition from the initial EQ program to the operational aspects of the EQ program. As discussed in Regulatory Guide 1.206 and Commission Paper SECY-05-0197, COL applicants must fully describe their operational programs to avoid the need for ITAAC regarding those programs.

Therefore, the NRC staff requests that Dominion address the operational aspects of the EQ program in the FSAR. For example, the FSAR should indicate that the EQ operational program will include the following aspects: (1) evaluation of EQ results for design life to establish activities to support continued EQ; (2) determination of surveillance and preventive maintenance activities based on EQ results; (3) consideration of EQ maintenance recommendations from equipment vendors; (4) evaluation of operating experience in developing surveillance and preventive maintenance activities for specific equipment; (5) development of plant procedures that specify individual equipment identification, appropriate references, installation requirements, surveillance and maintenance requirements, post-maintenance testing requirements, condition monitoring requirements, replacement part identification, and applicable design changes and modifications; (6) development of plant procedures for reviewing equipment performance and EQ operational activities, and for trending the results to incorporate lessons learned through appropriate modifications to the EQ operational program; and (7) development of plant procedures for the control and maintenance of EQ records.

Dominion Response

Dominion will revise the FSAR to enhance the EQ Program description and address the operational aspects described in the RAI. The EQ Program description addresses key elements of the program, including documentation requirements to support continued equipment qualification, maintenance of the EQ Master Equipment List (EQMEL), and controls that govern changes to the EQ files and the EQMEL.

Proposed COLA Revision

FSAR Section 3.11 will be revised as shown in the attached markup.

Markup of North Anna COLA

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

3.11 Environmental Qualification of Mechanical and Electrical Equipment

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.11.4.4 Environmental Qualification Documentation

Replace the last paragraph with the following.

STD COL 3.11-1-A

~~A description of the environmental qualification program is provided in DCD Section 3.11.~~

The documentation necessary to support the continued qualification of the equipment installed in the plant that is within the Environmental Qualification (EQ) Program scope is available in accordance with 10 CFR 50 Appendix A, General Design Criterion 1. EQ files are maintained for equipment and certain post-accident monitoring devices that are subject to a harsh environment. The files are maintained for the operational life of the plant.

Central to the EQ Program is the EQ Master Equipment List (EQMEL). The EQMEL identifies the electrical and mechanical equipment or components that must be environmentally qualified for use in a harsh environment. The EQMEL consists of equipment that is essential to emergency reactor shutdown, containment isolation, reactor core cooling, or containment and reactor heat removal, or that is otherwise essential in preventing a significant release of radioactive material to the environment. This list is developed from the equipment list provided in DCD Table 3.11-1. The EQMEL and a summary of equipment qualification results are maintained as part of the equipment qualification file for the operational life of the plant.

Administrative programs are in place to control revision to the EQ files and the EQMEL. When adding or modifying components in the EQ Program, EQ files are generated or revised to support qualification. The EQMEL is revised to reflect these new components. To delete a component from the EQ Program requires a deletion justification to be prepared that demonstrates why the component can be deleted. This justification consists of an analysis of the component, an associated circuit review if appropriate, and a safety evaluation. The justification is released and/or referenced on an appropriate change document.

For changes to the EQMEL, supporting documentation is completed and approved prior to issuing the changes. This documentation includes safety reviews and new or revised EQ files. Plant modifications and design basis changes are subject to change process reviews, e.g., reviews in accordance with 10 CFR 50.59 or the change control requirements of the ESBWR-specific appendix to 10 CFR Part 52, in accordance with appropriate plant procedures. These reviews address EQ issues associated with the activity. Any changes to the EQMEL that are not the result of a modification or design basis change are subject to a separate review that is accomplished and documented in accordance with plant procedures.

Engineering change documents or maintenance documents generated to document work performed on an EQ component are reviewed against the current revision of the EQ files for potential impact. Changes to EQ documentation may be due to, but not limited to, plant modifications, calculations, corrective maintenance, or other EQ concerns.

The operational aspects of the EQ program include:

- Evaluation of EQ results for design life to establish activities to support continued EQ
- Determination of surveillance and preventive maintenance activities based on EQ results
- Consideration of EQ maintenance recommendations from equipment vendors
- Evaluation of operating experience in developing surveillance and preventive maintenance activities for specific equipment
- Development of plant procedures that specify individual equipment identification, appropriate references, installation requirements, surveillance and maintenance requirements, post-maintenance testing requirements, condition monitoring requirements, replacement part identification, and applicable design changes and modifications
- Development of plant procedures for reviewing equipment performance and EQ operational activities, and for trending the results to incorporate lessons learned through appropriate modifications to the operational EQ program
- Development of plant procedures for the control and maintenance of EQ records