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April 17, 2014

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

Serial No. NA3-14-006  
Docket No. 52-017  
COL/DBE

**DOMINION VIRGINIA POWER**  
**NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION**  
**COLA MARKUPS TO ALIGN WITH FERMI 3 FEBRUARY 2014 COLA SUBMISSION**  
**AND DCD REVISION 10 UPDATE**

The purpose of this letter is to provide markups of the North Anna Unit 3 (NA3) COLA that are a result of revisions to the Enrico Fermi Unit 3 (EF3) Combined License Application (COLA) and the ESBWR Design Control Document (DCD).

On February 10, 2014, Dominion submitted a letter (ML14043A035) with COLA markups that reflected the incorporation of ESBWR DCD, Revision 10.

On February 14, 2014, DTE Electric Company (DTE) submitted a revision to the EF3 COLA to the NRC. This EF3 submission included changes to incorporate ESBWR DCD, Revision 10, and responses to NRC Requests for Additional Information (RAIs). Following the Design Center Working Group approach, Dominion reviewed DTE's submission and identified those EF3 COLA changes that are applicable to the NA3 COLA, and that were not included in Dominion's February 10, 2014 letter.

On April 1, 2014, General Electric Hitachi (GEH) submitted an updated version of ESBWR DCD Revision 10 to the NRC. Dominion reviewed the changes in this version of the DCD and identified one NA3 COLA change that is required (see first bullet below).

The markups included in the enclosure to this letter impact COLA Part 2, Final Safety Analysis Report (FSAR) and Part 10, Tier 1/ITAAC/Proposed License Conditions. A brief description of the proposed changes is provided below:

- The title of FSAR Section 1.6 is being revised to "Material Incorporated by Reference and General Reference Materials."
- Entries for topical reports NEI 07-01 and NEI 10-05, which are referenced in Part 10 of the COLA, are being added to FSAR Table 1.6-201.
- Regulatory Guides (RGs) 5.7 and 5.12 are addressed in FSAR Section 1.9 and FSAR Table 1.9-202.

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N120

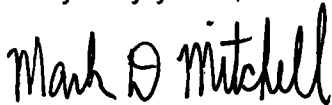
- In FSAR Section 3.9.3.1, "piping stress reports" is being revised to "equipment stress reports."
- A left margin annotation in FSAR Section 12.2.1.1.2 is being revised from site-specific to standard.
- A sentence is being added to FSAR Section 13.6.2 regarding implementation of the Security Program for physical protection of Special Nuclear Material.
- A sentence is being deleted in the first and third paragraphs of License Condition 3.8.1 to explicitly commit to performing the staffing assessment in accordance with NEI 12-01, Revision 0.
- License Condition 3.8.2 is being revised based on a DTE public teleconference with the NRC staff.

This information will be incorporated into a submission of the NA3 COLA, as described in the enclosure, in the second quarter of 2014.

In addition to the COLA markups described above, Dominion reviewed a letter that DTE submitted to the NRC on February 28, 2014 (ML14064A283) regarding cyclic loading of components. In that letter, DTE stated that no components have been identified by DTE or GEH that would be subjected to the cyclic loadings described in DCD Subsection 3.9.3.1, and thus, additional analyses or design changes are not necessary. Dominion has confirmed that this statement is also true for NA3.

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

Very truly yours,



Mark D. Mitchell

Enclosure: COLA Markups to Align with Fermi 3 R-COLA February 2014 Submission and DCD Revision 10 Update

Commitments made by this letter:

This information will be incorporated into a submission of the North Anna Unit 3 COLA, as described in the enclosure, in the second quarter of 2014.

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Mark D. Mitchell, who is Vice President – Generation Construction 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 17 day of April, 2014  
My registration number is 337029 and my  
Commission expires: January 31, 2015

Donna A. Port  
Notary Public



Embossed Hereon is My  
Commonwealth Of Virginia Notary Public Seal  
My Commission Expires January 31, 2015  
DONNA A. PORT

cc: U. S. Nuclear Regulatory Commission, Region II  
C. P. Patel, NRC  
T. S. Dozier, NRC  
G. J. Kolcum, NRC

**ENCLOSURE**

**COLA Markups to Align with Fermi 3 R-COLA February 2014  
Submission and DCD Revision 10 Update**

## **1.6 Material Incorporated by Reference and General Reference Material**

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

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Add the following paragraph at the end of this section.

**NAPS SUP 1.6-1**

**Table 1.6-201** lists topical reports not included in **DCD Section 1.6** that are incorporated in whole or in part by reference in the FSAR.



NAPS SUP 1.6-1

**Table 1.6-201 Referenced Topical Reports**

Report No.	Title	Section
NEI 06-06	Nuclear Energy Institute, "Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites," NEI 06-06, Revision 5, August 2009	13.7
NEI 06-13A	Nuclear Energy Institute, "Technical Report on Template for an Industry Training Program Description," NEI 06-13A, Revision 2, March 2009 (NRC approval as Rev. 1) (NEI published as Rev. 2)	13BB, COLA Part 4
NEI 06-14A	Nuclear Energy Institute, "Quality Assurance Program Description," NEI 06-14A, Revision 7, August 2010	17.5
<u>NEI 07-01</u>	<u>Nuclear Energy Institute, "Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reactors," NEI 07-01, Revision 0, July 2009</u>	<u>Part 10</u> <u>3.7.1</u>
NEI 07-02A	Nuclear Energy Institute, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed under 10 CFR Part 52," NEI 07-02A, Revision 0, Corrected, November 2010	17.6
NEI 07-03A	Nuclear Energy Institute, "Generic FSAR Template Guidance for Radiation Protection Program Description," NEI 07-03A, Revision 0, May 2009	12BB
NEI 07-08A	Nuclear Energy Institute, "Generic FSAR Template Guidance for Ensuring That Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA)," NEI 07-08A, Revision 0, October 2009	12.5.3 12AA
NEI 07-09A	Nuclear Energy Institute, "Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program Description," NEI 07-09A, Revision 0, March 2009	11.5
NEI 07-10A	Nuclear Energy Institute, "Generic FSAR Template Guidance for Process Control Program (PCP)," NEI 07-10A, Revision 0, March 2009	11.4
<u>NEI 10-05</u>	<u>Nuclear Energy Institute, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," NEI 10-05, Revision 0, June 2011</u>	<u>Part 10</u> <u>3.7.2</u>

**Section 1.4.)** For Division 5 Regulatory Guides, the plant-specific physical security plans include no substantive deviations from the NRC-endorsed template in NEI 03-12, "Template for Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, and [Independent Spent Fuel Storage Installation Security Program]" ([Reference 1.9-201](#)). The Cyber Security Plan includes no substantive deviations from the template in NEI 08-09, "Cyber Security Plan for Nuclear Reactors" ([Reference 1.9-202](#)). Therefore, the degree of conformance with Division 5 regulatory guides for the Physical Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan is consistent with the degree of conformance of NEI 03-12, and the Cyber Security Plan is consistent with the degree of conformance of NEI 08-09. Except for RGs 5.7 and 5.12, Table 1.9-202 does not re-address conformance with RGs for those portions of the facility design included in the referenced certified design. Similarly, [Table 1.9-202](#) does not re-address SSAR conformance with the applicable RGs.

In the table, the term "Conforms" means that no exception is being taken to the guidance in the regulatory positions as they apply to site-specific design information, operational aspects of the facility, or siting information in the FSAR that supplements the SSAR. The term "Not applicable" means that the regulatory positions do not apply to the ESBWR or Unit 3.

#### **Regulatory Guide 1.206**

[Table 1.9-203](#) evaluates conformance with the FSAR content guidance in RG 1.206. Where necessary, the table identifies the FSAR section where the required information is provided. In the table, the term "Conforms" means that the information called for in RG 1.206 is either: 1) already addressed in the DCD or SSAR; or 2) addressed by adding new information beyond that contained in the DCD or SSAR. The term "Not applicable" means that the information called for in RG 1.206 does not apply to the ESBWR or Unit 3.

[Table 1.9-203](#) evaluates conformance with RG 1.206, Section C.III.2, "Information Needed for a Combined License Application Referencing a Certified Design and an Early Site Permit." Section C.III.1, "Information Needed for a Combined License Application Referencing a Certified Design," and Section C.I, "Standard Format and Content of Combined License Applications for Nuclear Power Plants-Light-Water Reactor Edition," were also evaluated, as applicable, if portions of these sections



NAPS COL 1.9-3-A

**Table 1.9-202 Conformance with Regulatory Guides**

RG Number	Title	Revision	Date	RG Position	Evaluation
4.15 (cont'd)	Quality Assurance for Radiological Monitoring Programs (Inception Through Normal Operations to License Termination) – Effluent Streams and the Environment	Rev. 1	Feb-79	General	(continued) of 10 CFR Parts 20, 50, 52, 61, and 72. Use of Revision 2 of Regulatory Guide 4.15 would necessitate conducting two separate programs involving the use of common staff, facilities, and equipment, which would create an undue burden and may lead to increased probability for human error. Therefore, Dominion commits to use RG 4.15, Revision 1 methodology for North Anna Unit 3 for optimal consistency, efficiency, and practicality.
				C.2.3, C.2.5 – C.2.7	Not applicable. These types of detection equipment are not used.
				C.3.2	Not applicable. This testing option is not used.
<u>5.7</u>	<u>Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas</u>	<u>Rev. 1</u>	<u>May-80</u>	<u>General</u>	<u>Note (a)</u>



NAPS COL 1.9-3-A

**Table 1.9-202 Conformance with Regulatory Guides**

RG Number	Title	Revision	Date	RG Position	Evaluation
<u>5.12</u>	<u>General Use of Locks in the Protection and Control of Facilities and special Nuclear Materials</u>	<u>Rev. 0</u>	<u>Nov-73</u>	<u>General</u>	<u>Note (a)</u>
5.54	Standard Format and Content of Safeguards Contingency Plans for Nuclear Power Plants	Rev. 1	Jun-09	General	Note (a)
5.66	Access Authorization Program for Nuclear Power Plants	Rev. 2	Oct-11	General	Note (a)
5.69	Guidance for the Application of Radiological Sabotage Design-Basis Threat in the Design, Development and Implementation of a Physical Security Program that Meets 10 CFR 73.55 Requirements	Rev. 0	Sep-07	General	Note (a)
5.71	Cyber Security Programs for Nuclear Facilities	Rev. 0	Jan-10	General	Note (a)
5.75	Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities	Rev. 0	Jul-09	General	Note (a)
5.76	Physical Protection Programs at Nuclear Power Reactors	Rev. 0	Jul-09	General	Note (a)
5.77	Insider Mitigation Program	Rev. 0	Mar-09	General	Note (a)
8.1	Radiation Symbol				Withdrawn

- c. The startup program and associated steam dryer license conditions that include appropriate notification points during power ascension, providing data to the NRC at certain hold points and at full power, and providing to the NRC a full stress analysis report and evaluation within 90 days of reaching the full power level, are established in accordance with NEDE-33313P, Section 10.2(c).
- d. Periodic steam dryer inspection during refueling outages is as described in NEDE-33313P, Section 10.2(d), and associated license conditions.

3. Summary of Reactor Internals Vibration Assessment Program

For reactor internals other than the steam dryer, the comprehensive vibration assessment program will be developed and implemented as described in [DCD Appendix 3L](#) with no departures. The vibration measurement and inspection programs will comply with the guidance specified in RG 1.20, Revision 3, consistent with the Unit 3 reactor internals classification. A summary of the vibration analysis program and description of the vibration measurement (including measurement locations and analysis predictions) and inspection phases of the comprehensive vibration inspection program will be submitted to the NRC six months prior to implementation.

For reactor internals other than the steam dryer, the preliminary and final reports (as necessary), which together summarize the results of the vibration analysis, measurement and inspection programs will be submitted to the NRC within 60 and 180 days, respectively, following the completion of the programs.

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**3.9.3.1 Loading Combinations, Design Transients and Stress Limits**

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Replace the fifth paragraph with the following.

STD COL 3.9.9-2-A

The ~~pipng~~equipment stress reports identified in this DCD section will be completed within six months of completion of [DCD ITAAC Table 3.1-1](#). The FSAR will be revised as necessary in a subsequent update to address the results of this analysis.

#### 12.1-2-A Regulatory Guide 1.8

STD COL 12.1-2-A

This COL item is addressed in Section 12.1.1.3.3.

#### 12.1-3-A Operational Considerations

STD COL 12.1-3-A

This COL item is addressed in Section 12.1.3.

#### 12.1-4-A Regulatory Guide 8.8

STD COL 12.1-4-A

This COL item is addressed in Section 12.1.1.3.1.

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### 12.2 Plant Sources

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

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#### 12.2.1.1.2 Other Radioactive Sources

Add the following at the end of this section.

**STD SUP 12.2-1**  
**NAPS SUP 12.2-1**

[The Cf-252 reactor startup source is a sealed source. Each source capsule contains 0.5 to 0.822 mg Cf-252. Six sources are required, resulting in a total of 3 to 5 mg (1.6 to 2.7 Ci) Cf-252.]

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#### 12.2.1.5 Other Contained Sources

Replace this section with the following.

CWR COL 12.2-4-A

In addition to the contained sources identified above, additional contained sources which contain by-product, source, or special nuclear materials may be maintained on site. These contained sources are used as calibration, check, or radiography sources. These sources are not part of the permanent plant design, and their control and use are governed by plant procedures. The procedures consider the guidance provided in RG 8.8 to ensure that occupational doses from the control and use of the sources are as low as is reasonably achievable (ALARA).

Various types and quantities of radioactive sources are employed to calibrate the process and effluent radiation monitors, the area radiation monitors, and portable and laboratory radiation detectors. Check sources that are integral to the area, process, and effluent monitors consist of small quantities of by-product material and do not require special handling, storage, or use procedures for radiation protection purposes. The same consideration applies to solid and liquid radionuclide sources



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#### 13.6.1.1.8 Testing

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Replace the last sentence in the first paragraph with the following.

STD COL 13.6-10-A

The establishment of these surveillance test procedures and frequencies will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201).

Replace the last sentence in the second paragraph with the following.

STD COL 13.6-11-A

The establishment of these testing and maintenance milestones will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201).

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#### 13.6.2 Security Plan

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Replace this section with the following.

STD SUP 13.6-1

The Security Plan consists of the Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Cyber Security Plan. The Security Plan is submitted to the Nuclear Regulatory Commission as separate licensing documents in order to fulfill the requirements of 10 CFR 52.79(a)(35) and (36). The Security Plan meets the requirements contained in 10 CFR 26 and 10 CFR 73 and will be maintained in accordance with the requirements of 10 CFR 52.98. Implementation of the Security Program required by 10 CFR 73.55(a)(4) meets the requirements for physical protection of Special Nuclear Material of low strategic significance as required by 10 CFR 73.67(f). The Security Plan, except for the Cyber Security Plan, is categorized as Security Safeguards Information and is withheld from public disclosure pursuant to 10 CFR 73.21. The Cyber Security Plan is categorized as Security-Related Information and is withheld from public disclosure pursuant to 10 CFR 2.390.

~~The Special Nuclear Material (SNM) Physical Protection Program implements the requirements of 10 CFR 73.67(f) and (g) during the period beginning prior to receipt of SNM and ending after relocation of the SNM to an operational protected area. It is submitted as a separate licensing document which is categorized as Security Related Information and is withheld from public disclosure pursuant to 10 CFR 2.390.~~



**Table 13.4-201.** The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the operational programs in the FSAR table have been fully implemented. This schedule shall also address:

- The implementation of site-specific Severe Accident Management Guidelines
- The spent fuel rack coupon monitoring program implementation

### **3.7 Emergency Planning Actions**

#### **3.7.1 Emergency Action Levels (EALs)**

No later than 180 days prior to initial fuel load, the licensee shall submit to the Director of NRO, or the Director's designee, a fully developed set of site-specific EALs in accordance with NEI 07-01, Revision 0, with no deviations. The EALs shall have been discussed and agreed upon with state and local officials.

#### **3.7.2 On-Shift Staffing**

The licensee shall perform a detailed analysis of on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan (EP) needed to bring staff to the required levels, prior to or concurrent with the completion of EP ITAAC 2.0 of Table 2.3-1, and no less than 180 days prior to initial fuel load.

### **3.8 Actions to Address Fukushima Near-Term Task Force Recommendations**

#### **3.8.1 Emergency Planning Actions**

At least two years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, ~~or other NRC endorsed guidance in effect six months prior to commencement of the assessment.~~

At least 180 days prior to scheduled initial fuel load, the licensee shall revise the EP to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above
- Identification of how the augmented staff will be notified given degraded communications capabilities

At least two years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and off-site communications systems and equipment required during an emergency event to ensure communications capabilities can be maintained during prolonged

station blackout conditions. The communications capability assessment will be performed in accordance with NEI 12-01, "Guidance for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, ~~or other NRC endorsed guidance in effect six months prior to completion of the assessment.~~

At least 180 days prior to scheduled initial fuel load, the licensee shall complete implementation of corrective actions identified in the communications capability assessment described above, including any related emergency plan and implementing procedure changes and associated training.

### 3.8.2 Mitigation Strategies for Beyond-Design-Basis External Events

~~Prior to initial fuel load, the following actions will be fully implemented associated with mitigation strategies including procedures, guidance, training, and acquisition, staging, or installation of equipment needed for the strategies:~~

- ~~a. Develop, implement, and maintain guidance and strategies to maintain or restore core, containment, and spent fuel pool cooling capabilities following a beyond design basis external event. These strategies must:~~
  - ~~• Be capable of mitigating a simultaneous loss of all AC power and loss of normal access to the normal heat sink, and~~
  - ~~• Have adequate capacity to address challenges for core, containment, and spent fuel pool cooling capabilities, and~~
  - ~~• Have the capability to be implemented in all modes.~~
- ~~b. Provide reasonable protection for the associated equipment from external events. Such protection must demonstrate that there is adequate capacity to address challenges to core, containment, and spent fuel pool cooling capabilities.~~
- ~~c. Full compliance shall include procedures, guidance, training, and acquisition, staging, or installation of equipment needed for the strategies.~~

~~Within one year after issuance of the COL, an overall integrated plan shall be submitted to the NRC, including a description of how compliance with the requirements described in this license condition will be achieved.~~

~~Initial status reports shall be provided to the NRC 60 days following issuance of the COL and at six month intervals following submittal of the overall integrated plan described above which delineates progress made in implementing the requirements of this license condition.~~

At least 180 days before the date scheduled for initial fuel load as set forth in the notification submitted in accordance with 10 CFR 52.103(a), the licensee shall use the guidance contained in JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0 and



the information presented in FSAR Section 1.5 to complete the development of strategies and guidance to maintain and, if necessary, restore core cooling, containment, and spent fuel pool cooling capabilities beginning 72 hours after loss of all normal and emergency AC power sources, including any alternate AC source under 10 CFR 50.63. These strategies must be capable of:

- Mitigating a simultaneous loss of all AC power sources, both from the on-site and off-site power systems, and loss of normal access to the normal heat sink,
- Maintaining core cooling, containment, and spent fuel cooling capabilities for NA3 during and after such an event affecting all units on site, and
- Being implemented in all plant Modes.

Before initial fuel load, the licensee shall fully implement the strategies and guidance required in this license condition, including procedures, training, and acquisition, staging or installing of equipment and consumables relied upon in the strategies.

### 3.8.3 Reliable Spent Fuel Pool/Buffer Pool Level Instrumentation

The spent fuel pool/buffer pool instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. The training program shall include provisions to ensure trained personnel can route the temporary power lines from the alternative power source to the appropriate connection points and connect the alternate power source to the safety-related level instrument channels.

## 3.9 Explosively Actuated Valves

Before initial fuel load, the licensee shall implement a surveillance program for explosively actuated valves (squib valves) in the Gravity-Driven Cooling System and the Automatic Depressurization System at Unit 3 that includes the following provisions in addition to the requirements specified in the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code) as incorporated by reference in 10 CFR 50.55a.

### a. Preservice Testing (PST)

All explosively actuated valves shall be preservice tested by verifying the operational readiness of the actuation logic and associated electrical circuits for each explosively actuated valve with its pyrotechnic charge removed from the valve. This must include confirmation that sufficient electrical parameters (voltage, current, resistance) are available at the explosively actuated valve from each circuit that is relied upon to actuate the valve. In addition, a sample of at least 20 percent of the pyrotechnic charges in all explosively actuated valves shall be tested in the valve or a qualified test fixture to confirm the capability of each sampled pyrotechnic charge to provide the necessary motive force to operate the valve to perform its intended function without damage to the valve body or connected piping. The sampling must select at least one explosively actuated valve from each redundant safety train. Corrective