

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**

**(Transmitting Pre-Hearing Questions)**

On January 31, 2017, the Commission issued a notice that it would convene an evidentiary hearing at its Rockville, Maryland headquarters on March 23, 2017, pursuant to section 189a. of the Atomic Energy Act of 1954, as amended, to receive testimony and exhibits in the uncontested portion of the captioned proceeding.<sup>1</sup> In connection with that hearing, pursuant to my authority under 10 C.F.R. § 2.346(a) and (j), Dominion Virginia Power and the NRC Staff should file written responses to the questions provided in the table below.

Responses should be filed by **March 2, 2017**.

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<sup>1</sup> Dominion Virginia Power, North Anna Unit 3, 82 Fed. Reg. 8864 (Jan. 31, 2017).

No.	Category	Subject	Directed to	Question
1	Safety/Seismic Design	RAI 5693, 2.5.2-3a FSER §§ 2.5.2.2, 2.5.2.4	Staff Applicant	<p>In Request for Additional Information 5693, 2.5.2-3a, dated May 5, 2011 (ML1125A124), the Staff asked the Applicant to justify the one-dimensional (1D) site response analysis using only vertically propagating shear waves, given the complex topography of the subsurface layers. On August 25, 2011 (ML11241A058), the Applicant responded that the soil and rocks at the site are all derived from the same parent rock. The Applicant attributed the subsurface variability to the localized effects of weathering on minerals comprising the parent rock rather than to deposition of soil as distinct layers. For lateral variability, the Applicant states that the boundaries between rock types are gradational and so do not represent lateral impedance boundaries that may result in refraction, reflection, or trapping of the shear waves traveling in horizontal directions. Therefore, the site can be characterized as undulating, but not <i>dipping</i>, thus justifying the 1D analysis. The Applicant uses the same weathering process to explain the existence of vertical variation, but with distinct boundary impedances at different depths as shown in Final Safety Evaluation Report (FSER) Figure 2.5.2-5. Please discuss why the same weathering mechanism generates sharp boundaries vertically, but not laterally.</p>
2	Safety/Seismic Design	FSER § 2.5.2.2	Staff Applicant	<p>The FSER states that the Applicant concluded that the three-component strong ground motion accelerograms of the M5.8 Mineral earthquake recorded at the North Anna Unit 1 structure (the closest available strong motion recordings of the Mineral earthquake) “correlated well with ground motion prediction equations [(GMPEs)] for the [central and eastern United States] at high frequencies (peak ground acceleration (PGA), 5 Hz)] but [that they] were lower than predicted at low frequency (1 Hz).”</p> <p>Since the GMPEs describe the <i>free-field</i> ground motion at a given location, how is the correlation with the recorded motion on the containment mat foundation (not a free-field location) justified?</p>

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3	Safety	FSER §§ 2.0.2, 2.0.4 NAPS ESP VAR 2.0-7	Staff Applicant	<p>The Applicant requested a variance from ESP, Appendix A, Figure 1, Note 2, which states, "Abandoned Unit 3 and 4 Reactor Building Mat Foundations are to be removed." The requested variance, however, also indicates that the Applicant would "not remove the abandoned mat foundations ... unless a Unit 3 Seismic Category I or II structure would be located above an abandoned foundation."</p> <p>For the Staff: The Staff states that the site layout in Final Safety Analysis Report (FSAR) Figure 2.4-201 is subject to control under the provisions of 10 C.F.R. § 50.59, and this control is sufficient to ensure that Dominion will account for any effect the abandoned mat foundations might have. Please explain in more detail why the provisions of 10 C.F.R. § 50.59 are sufficient in this context.</p> <p>For the Applicant: Please explain why the variance indicated the abandoned mat foundations would not be removed unless a Unit 3 Seismic Category I or II structure would be located above an abandoned foundation. Does the Applicant anticipate the need to relocate the Unit 3 Seismic Category I or II structures from the coordinates in the FSAR?</p>
4	Safety	FSER §§ 8.3.2.4, 8.3.2.5	Staff	<p>The FSER alludes to a license condition for training and procedures to mitigate a station blackout event, stating that "[b]ecause the detailed training and procedures [regarding mitigation of a station blackout event] will not be fully developed until required by license condition, they will be subject to inspection after implementation." But the Staff does not identify a specific license condition or any other post-combined license activities. Please clarify which license condition(s) require(s) the post-licensing development and implementation of station blackout response training and procedures.</p>
5	Safety	FSER § 1.5.1.8 Nuclear Insurance & Indemnity	Staff Applicant	<p>Instead of providing the information to meet the requirements of 10 C.F.R. §§ 50.54(w), 140.11(a)(4), and 140.21 at the time of COL issuance, the Applicant proposed two license conditions to meet these requirements. The Staff accepted the conditions with minor variations and found that with the conditions the Applicant met all applicable requirements. Why is it</p>

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				<p>acceptable to meet these requirements with a license condition without taking an exemption from the regulation?</p> <p>Both license conditions require action “before the scheduled date for initial fuel load.” Therefore, why are these requirements included as license conditions and not as Inspections, Tests, and/or Analyses and Acceptance Criteria?</p>
6	Safety	FSER § 3.7 Safe Shutdown Earthquake (SSE)	Applicant Staff	<p>The Staff’s Statement in Support of the Uncontested Hearing for Issuance of a Combined Licensed for North Anna Power Station Unit 3 notes that, because the site-specific seismic conditions for North Anna Unit 3 are not bounded by the ESBWR Design Control Document seismic design parameters, the Applicant defines the SSE to include the Certified Seismic Design Response Spectra (CSDRS) and the site-specific foundation input response spectra (FIRS) for each seismically qualified structure. What are the practical implications for the SSE being defined in this manner as far as assessing future modifications to the plant with respect to seismic safety?</p>
7	Safety	Draft License Condition 2.D.(11)(a)	Staff Applicant	<p>Please provide the regulatory basis for the requirement that the schedule for implementation of the operational programs listed in FSAR Table 13.4-201, “Operational Programs Required by NRC Regulations,” includes site-specific Severe Accident Management Guidelines.</p>
8	Safety	Draft License Condition 2.B.(1)(a) and (b)	Staff Applicant	<p>Please explain the relationship between conditions 2.B.(1)(a) and (b) in the draft COL. Condition (a) appears to grant Dominion authority to operate the facility, while condition (b) appears to remove that same authority. When the owner and operator of the facility are the same company—as is the case here—is it necessary to include condition (b) in the COL?</p> <p>If the Staff intends to retain the condition, please discuss the reason for the difference between the North Anna and Fermi licenses.</p>

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9	Safety	Draft License Condition 2.D.(2)	Staff Applicant	License Condition 2.D.(2), "Startup Administration Manual, Preoperational and Startup Test Procedures," was not included in the Fermi COL. Please discuss why it was added for this subsequent COL.
10	Safety	Draft License Condition 2.D.(12)(f)2.	Staff	License Condition 2.D.(12)(f)2., "Mitigation Strategies for Beyond-Design-Basis External Events," requires that the overall integrated plan for mitigation strategies "include provisions to ensure that all accident mitigation procedures and guidelines ... are coherent and comprehensive." The analogous license condition in the ESBWR reference COL (Fermi Unit 3), Condition 2.D.12.g.2, requires that the overall integrated plan for mitigation strategies "include provisions to address all accident mitigation procedures and guidelines." Language similar to this appears in other COLs that have been issued since Fermi Unit 3. What prompted the change in the language for this license condition in the North Anna Unit 3 draft COL?
11	Safety	Early Site Permit Conditions	Staff Applicant	10 C.F.R. § 52.79(b)(3) states that any terms and conditions of the early site permit (ESP) that could not be met by the time of COL issuance "must be set forth as terms or conditions of the combined license." Section 3.E of the North Anna ESP includes six site-specific conditions. Please describe where these conditions were met in the FSAR and evaluated in the FSER or where they appear in the draft COL.
12	Environmental	Environmental Report § 1.2, table 1.2-1 Final SEIS Appendix L	Applicant Staff	What is the status of pending environmental permits, certifications, and authorizations?
13	Environmental	Final SEIS § 4.2	Staff	For some resource areas, the Staff relied on commitments made by Dominion when making its impact determinations. For example, Final SEIS § 4.2 states:  [b]ecause the COL application is for a single unit instead of the two units addressed in the ESP EIS (NRC 2006), it is

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				<p>anticipated that fewer construction workers would be required at any one time. Thus, the potential air-quality impacts would be less than originally estimated for the ESP application. Given the continued commitment by Dominion to develop a traffic management plan and current air-quality conditions within the region, the initial conclusion reached in the ESP EIS (NRC 2006), SMALL, remain[s] the same and additional mitigation beyond the currently planned actions is not warranted.</p> <p>How does the Staff intend to ensure that those commitments are met? How did the Staff's new and significant information analysis (performed following issuance of the Final SEIS) take into account those commitments?</p>
14	Environmental	Final SEIS § 6.3; Decommissioning GEIS §§ 4.3.7.4, 4.3.13.4, 6.1	Staff	<p>In § 6.3 of the Final SEIS, the Staff stated that it "has no reason to believe that the impacts discussed in [Generic Environmental Impact Statement for Decommissioning of Nuclear Facilities: Supplement 1, Regarding the Decommissioning of Nuclear Power Reactors (Decommissioning GEIS)] are not bounding for reactors deployed after 2002." Section 6.3 also notes that the impacts of decommissioning were reserved for the COL stage of the proceeding, meaning these impacts were not resolved during the ESP proceeding.</p> <p>In the Decommissioning GEIS (see §§ 4.3.7.4, 4.3.13.4, 6.1), the NRC did not make generic conclusions for some resource areas (e.g., threatened and endangered species, environmental justice), instead stating a site-specific analysis should be completed. How did the Staff capture those site-specific impacts of decommissioning in the Final SEIS?</p>
15	Environmental	National Historic Preservation Act	Staff Applicant	Please describe the Staff's National Historic Preservation Act (NHPA) Section 106 consultation efforts since publication of the Final SEIS.
16	Environmental	National Historic Preservation Act	Staff	How did the U.S. Army Corps of Engineers' recent designation (available at ML16333A396) of the NRC as the lead federal agency to fulfill the collective federal responsibilities under Section 106 of the NHPA and its authorization

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				for NRC to conduct Section 106 coordination on its behalf affect the Staff's efforts in this area?
17	Environmental	General	Staff	In the recent environmental reviews for combined license applications (for example, Levy Nuclear Plant, Units 1 and 2; William States Lee III Nuclear Station, Units 1 and 2; and South Texas Project, Units 3 and 4), the U.S. Army Corps of Engineers participated as a cooperating agency in the preparation of the EIS. What role did that agency have in the North Anna combined license application review?
18	Environmental	Final SEIS, Chapter 6	Staff	<p>A general license for an independent spent fuel storage installation (ISFSI) is issued under 10 C.F.R. § 72.210 to all COL holders.</p> <ul style="list-style-type: none"> <li>• Did the Staff explicitly consult with the Virginia State Historic Preservation Officer (SHPO) and Tribes on the issuance of a general license to Dominion for an ISFSI at the North Anna site?</li> <li>• If the Staff did not inform the SHPO and Tribes about the general license for an ISFSI during consultation, did the Staff inform them after consultation? If so, what was their response?</li> <li>• If the Staff did not inform the SHPO and Tribes of the general license for an ISFSI during consultation, explain why the Staff's NHPA consultation was adequate.</li> </ul> <p>What requirements or procedures would ensure that historic and cultural resources are adequately protected if the Applicant constructs an ISFSI?</p>
19	Environmental	General	Staff	Dominion proposed several exemptions to otherwise-applicable regulatory requirements in its application. Please discuss how the Staff addressed the exemptions in its environmental review.
20	Environmental	General	Staff Applicant	Did the Applicant propose any novel environmental approaches in the environmental portion of its application? How did the Staff address these approaches?

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21	Environmental	General	Staff Applicant	Please highlight major themes from the comments on the Draft SEIS, and generally describe the Staff's responses to those comments.
22	Environmental	Record of Decision, Mitigation Measures, Consultations	Staff	<p>Several sections of the draft Record of Decision (ROD) list mitigation measures that were required of the Applicant by the U.S. Army Corps of Engineers' Section 404 Permit. These mitigation measures were also discussed in the Final SEIS when making impact determinations. However, the ROD also states that "[t]he [U.S. Army Corps of Engineers temporarily suspended its permit on November 16, 2016, pending completion of consultation under the Endangered Species Act." What effect does the suspended permit have on the conclusions in the Final SEIS that relied on implementation of these mitigation measures?</p> <p>The draft ROD states that the suspension is temporary. What is the Staff's best estimate of when the permit will be reinstated? Does the Staff have any indication of whether the mitigation measures listed in the permit will be included in any new permit?</p>
23	Environmental	Need for Power	Staff Applicant	On February 4, 2017, a member of the public filed a comment on the public docket that raised concerns with whether the need for power analysis in Chapter 8 of the Final SEIS met the guidance of NUREG-1555 (available at ML17037D071). Because the Applicant did not address its need for power in the ESP proceeding, it is within the scope of the COL review. Please respond to the arguments made in the public comment.
24	Environmental	General	Applicant	Describe the Applicant's process for review of new and potentially significant information both between the ESP and COL applications and after the Final SEIS was published.
25	Environmental	Post-Final SEIS New and Significant Information	Staff	Describe the issues that the Staff considered for its review of new and potentially significant information since publication of the Final SEIS in 2010.



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26	Environmental	Post-Final SEIS New and Significant Information	Staff	The Staff relies on the analysis in NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, throughout the Final SEIS. <i>E.g.</i> , Final SEIS at 9-3. As part of its review of new and significant information, did the Staff consider the intervening revision to NUREG-1437? If so, what was the result of that consideration; if not, does the revision to NUREG-1437 constitute new and significant information?
27	Environmental	Post-Final SEIS New and Significant Information	Staff	The Final SEIS states that for new information discovered after issuance of the ESP EIS to be considered significant, and therefore addressed in the SEIS, “it must be material to the issue being considered; that is, it must have the potential to affect the finding or conclusions of the NRC [S]taff’s evaluation of the issue.” Final SEIS at 1-5. In the Staff’s memoranda considering whether new information constitutes new and significant information, the Staff concludes that the standard for triggering a supplemental EIS is whether the new information presents a “seriously different picture of the environmental impacts when compared to the impacts described in the [Draft SEIS].” Please describe in more detail the relationship between these two standards.
28	Environmental	Post-Final SEIS New and Significant Information; Continued Storage	Staff	As part of the Staff’s environmental review following publication of the Final SEIS, it took into consideration the analysis provided in the Continued Storage GEIS (ML15254A426). In its analysis, the Staff notes that the impacts assessed in the Continued Storage GEIS are deemed incorporated into a COL EIS. The analysis references the Continued Storage GEIS § 4.20, table 4-2, where the impacts are summarized for each resource area and each timeframe. For special status species and habitats, the Staff concluded in the Continued Storage GEIS that “[i]mpacts on Federally listed threatened and endangered species and Essential Fish Habitat would be determined as part of the consultations for the ESA and Magnuson-Stevens Fishery Conservation and Management Act.”  How did the Staff’s consultations with the U.S. Fish and Wildlife Service consider the impacts of continued storage on special status species and habitats?

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29	Environmental	Post-Final SEIS New and Significant Information; Cumulative Impacts	Staff	Please provide a public discussion of the process the Staff used to review new and potentially significant information regarding cumulative impacts. Did the Staff consider the cumulative impacts of other federal and state projects during the preview process? Specifically, please clarify the Staff's cumulative impacts analysis in the consideration of new information regarding transport of large reactor components.
30	Environmental	Post-Final SEIS New and Significant Information; Severe Accidents (SAMAs)	Staff	Please provide a public description of the Staff's efforts to consider new and significant information associated with the SAMA analysis. What, if any, significant challenges did the Staff identify while conducting this analysis?
31	Environmental	Consideration of New Information (ML 16342B385); Biological Assessment for National Marine Fisheries Service (ML 16082A287); Supplemental Biological Assessment for U.S. Fish and Wildlife Service (ML 16312A319)	Staff	Describe the Staff's efforts and status of any consultations related to the Endangered Species Act Section 7 since publication of the Final SEIS. What is the status of the Staff's consultation with the U.S. Fish and Wildlife Service?

IT IS SO ORDERED.

For the Commission

**NRC Seal**

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Annette L. Vietti-Cook  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 17<sup>th</sup> day of February, 2017.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
)  
Virginia Electric and Power Company d/b/a )  
Dominion Virginia Power (DVP or Dominion) )  
and Old Dominion Electric Cooperative (ODEC) ) 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 (Transmitting Pre-Hearing Questions)** have been served upon the following persons by Electronic Information Exchange.

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

Dated at Rockville, Maryland,  
this 17<sup>th</sup> day of February, 2017