PMNorthAnna3COLPEmails Resource

From:	Thomas Kevern
Sent:	Thursday, October 16, 2008 3:12 PM
То:	Dominion.Naps3ColaRAI@DOM.COM
Cc:	Regina.Borsh@dom.com; john.hayden@dom.com; Wanda.K.Marshall@dom.com; NorthAnna3COL Resource; Andrea Johnson; Sharon Green; Janelle Jessie
Subject:	North Anna RAI Letter #029
Attachments:	RAI Ltr#29ML0829002010.pdf

Gina:

Attached is the subject RAI letter - includes questions re SRP Sections 08.02 - OFFSITE POWER SYSTEM and 16 - TECHNICAL SPECIFICATIONS.

Please contact me if questions.

Tom

Hearing Identifier:NorthAnna3_Public_EXEmail Number:511

Mail Envelope Properties (CEEA97CC21430049B821E684512F6E5EAA306CB59F)

Subject:	North Anna RAI Letter #029
Sent Date:	10/16/2008 3:11:45 PM
Received Date:	10/16/2008 3:11:47 PM
From:	Thomas Kevern

Created By: Thomas.Kevern@nrc.gov

Recipients:

"Regina.Borsh@dom.com" <Regina.Borsh@dom.com> Tracking Status: None "john.hayden@dom.com" <john.hayden@dom.com> Tracking Status: None "Wanda.K.Marshall@dom.com" <Wanda.K.Marshall@dom.com> Tracking Status: None "NorthAnna3COL Resource" <NorthAnna3COL.Resource@nrc.gov> Tracking Status: None "Andrea Johnson" < Andrea. Johnson@nrc.gov> Tracking Status: None "Sharon Green" <Sharon.Green@nrc.gov> Tracking Status: None "Janelle Jessie" < Janelle.Jessie@nrc.gov> Tracking Status: None "Dominion.Naps3ColaRAI@DOM.COM" <Dominion.Naps3ColaRAI@DOM.COM> Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size		Date & Time
MESSAGE	210		10/16/2008 3:11:47 PM
RAI Ltr#29ML0829002010.pdf		114641	

Options	
Priority:	Standard
Return Notification:	No
Reply Requested:	No
Sensitivity:	Normal
Expiration Date:	
Recipients Received:	

October 16, 2008

Mr. Eugene S. Grecheck Vice President - Nuclear Development Dominion Innsbrook Technical Center 5000 Dominion Boulevard Glen Allen, VA 23060-6711

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 029 (SRP SECTIONS 08.02 - OFFSITE POWER SYSTEM 16 - TECHNICAL SPECIFICATIONS RELATED TO THE NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION

Dear Mr. Grecheck:

By letter dated November 26, 2007, Dominion Virginia Power (Dominion) submitted a combined license application for North Anna Unit 3 pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application.

The staff has identified that additional information is needed to continue portions of the review and the request for additional information (RAI) is contained in the enclosure to this letter. To support the review schedule, Dominion is requested to respond within 45 days of the date of this letter. If the RAI response involves changes to application documentation, Dominion is requested to include the associated revised documentation with the response.

Should you have questions, please contact me at (301) 415-0224 or Thomas.Kevern@nrc.gov.

Sincerely,

/**RA**/

Thomas A. Kevern, Senior Project Manager ESBWR/ABWR Projects Branch 1 Division of New Reactor Licensing Office of New Reactors

Docket No. 52-017

Enclosure: Request for Additional Information

October 16, 2008

Mr. Eugene S. Grecheck Vice President - Nuclear Development Dominion Innsbrook Technical Center 5000 Dominion Boulevard Glen Allen, VA 23060-6711

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 029 (SRP SECTIONS 08.02 - OFFSITE POWER SYSTEM 16 - TECHNICAL SPECIFICATIONS RELATED TO THE NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION

Dear Mr. Grecheck:

By letter dated November 26, 2007, Dominion Virginia Power (Dominion) submitted a combined license application for North Anna Unit 3 pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application.

The staff has identified that additional information is needed to continue portions of the review and the request for additional information (RAI) is contained in the enclosure to this letter. To support the review schedule, Dominion is requested to respond within 45 days of the date of this letter. If the RAI response involves changes to application documentation, Dominion is requested to include the associated revised documentation with the response.

Should you have questions, please contact me at (301) 415-0224 or Thomas.Kevern@nrc.gov.

Sincerely,

/RA/

Thomas A. Kevern, Senior Project Manager ESBWR/ABWR Projects Branch 1 Division of New Reactor Licensing Office of New Reactors

Docket No. 52-017 Enclosure: Request for Additional Information Distribution: NRO_DNRL_NGE1 TKevern, NRO NRO_DNRL_NGE2 MLesser, Rgn2 SGreem, NRO SBrock, OGC

AJohnson, NRO APal, NRO RJenkins, NRO MEudy, NRO TTjader, NRO MMarshall, NRO

E-RAI Tracking No: 1207, 1451 ADAMS Accession No.: ML082900201

OFFICE	TR: EEB	BC: EEB	PM:DNRL:NGE1	OGC (NLO)	PM:DNRL:NGE1
NAME	APal *	RJenkins*	MEudy*	SBrock*	TKevern*
DATE	09/22/08	09/22/08	09/29/08	10/03/08	10/16/08
OFFICE	TR: CTSB	BC: CTSB	PM:DNRL:NGE1	OGC (NLO)	PM:DNRL:NGE1
NAME	TTjader*	MMarshall*	MEudy*	SBrock*	TKevern*
DATE	10/06/08	10/06/08	10/09/08	10/09/08	10/16/08

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information North Anna, Unit 3 Dominion Docket Number 52-017 SRP Sections: 08.02 - Offsite Power System; Section: 16 - Technical Specifications Application: FSAR Section 8.2 and Chapter 16; Part 4

QUESTIONS

08.02-29

In response to RAI 8.2-4, the applicant, on July 28, 2008, stated that the normal preferred power supply and alternate preferred power supply both use 230 kV cable. In addition, the applicant stated that periodic monitoring of cable insulation for underground medium and high voltage cable will be conducted to detect potential cable degradation from moisture intrusion using one of the following methods or an equivalent: partial discharge testing, time domain reflectometry, dissipation factor testing, or very low frequency ac testing. The staff needs the applicant to provide technical justification of using one of the testing methods indicated above will be adequate to detect potential high voltage (230 kV) cable degradation.

In addition, the staff finds that the applicant did not address the testing frequency. The staff also finds that the testing specified alone is not sufficient. The staff believes that testing of cables and inspection of manholes for water accumulation are required in order to avoid cable degradation. The manholes should be inspected every six months for water accumulation and adequate corrective actions (increase frequency) should be taken if water accumulation is found. The staff requests that the applicant address the above concerns.

08.02-30

In response to RAI 8.2-6, on July 28, 2008, the applicant stated that transformers 1, 2, 3, 5, and 6 in the North Anna switchyard are protected by sudden pressure relays. Transformers 1 and 2 have solid grounds on their 500 kV, wye connected windings. The 34.5 kV delta connected windings have zig-zag transformers connected on the bus creating a ground source. This ground source is monitored by relays for ground fault detection. Differential relays applied across these transformers also provide ground fault protection. Since the transformers 3, 5, and 6 have no tertiary winding, differential relays provide ground fault protection.

On the basis of its review, the staff finds that the applicant did not identify transformers 1, 2, 3, 5, and 6 in Figure 8.2-201. The staff requests that the applicant revise or supplement figure 8.2-201 accordingly.

08.02-31

As referenced in SRP section 8.2, operating experience has indicated that Palo Verde Nuclear Generating Station lost offsite power and all three units tripped on June 14, 2004. As a result of this operating experience, the staff requested the applicant to clarify whether the stability analysis for North Anna switchyard included tripping of all three nuclear units.

In RAI 8.2-10 response, you have stated that stability analysis was performed in accordance with NERC Categories A, B, and C for no contingency evaluations, N-1 evaluations and N-2 evaluations. NERC Category D includes a case for loss of all generating units at a single station and is considered an extreme event analysis and exceeds N-2. NERC Category D analyses are not applicable to North Anna.

However, the staff requests that the applicant provide a discussion (including failure mode and effect analysis) why they believe that event similar to Palo Verde will not cause the loss of three units at North Anna Station, or should such an event occur it will not impact grid stability.

08.02-32

In response to RAI 8.2-11, you have stated that the angular stability analysis is performed at the transmission voltage level and would, as such, excludes loads operating at distribution voltage levels of 34.5 kV as they have limited ability to cause angular stability difficulties at the transmission level. However, the staff requests that the applicant quantify the 34.5 kV distribution loads (MW/MVA) in terms of the total load modeled at the 500 kV transmission system. In addition, please explain why you believe the distribution loads have limited ability to affect the grid stability.

08.02-33

In response to RAI 8.2-16, the applicant, on July 28, 2008, stated that the North Anna switchyard is not important to safety for Unit 3, and thus GDC 5 is not applicable. Additionally, the applicant stated that Unit 3 is an ESBWR, which is a passive design, and as such, it does not rely on offsite power to perform any safety-related function, or to support safety-related functions.

The NRC staff finds the applicant's response to be unacceptable. The staff believes that the offsite power system performs a safety function in ESBWR design as it provides power to safety-related battery chargers and safety-related uninterruptible power system (UPS) during normal, abnormal and accident conditions. The staff recognizes that the passive plants are designed to rely on passive systems to perform design-basis functions of the reactor coolant makeup and decay heat removal. However, the passive designs also include active systems that provide defense-in-depth capabilities for reactor coolant makeup and decay heat removal. These active systems are the first line of defense to reduce challenges to the passive systems in the event of transients or plant upsets.

Therefore, the staff concludes that the offsite power system plays an important role in ESBWR design. North Anna Unit 3 switchyard is shared with Units 1& 2 switchyard. In order for the staff to ensure the adequacy of the offsite power system design at North Anna 3, the offsite power system must satisfy the acceptance criteria based on meeting the relevant requirements of GDC 5. NUREG-0800,"Standard Review Plan," Section 8.2.II provides sufficient guidance with respect to the portions of GDC 5 that are applicable to offsite power systems. The staff requests that the applicant provide a discussion on how the requirements of GDC 5 are met.

08.02-34

In response to RAI 8.2-17, the applicant, on July 28, 2008, stated that the North Anna switchyard is not important to safety for Unit 3, and thus GDC 4 is not applicable. Additionally, the applicant stated that Unit 3 is an ESBWR, which is a passive design, and as such, it does not rely on offsite power to perform any safety-related function, or to support safety-related functions.

The NRC staff finds the applicant's response to be unacceptable. The staff believes that the offsite power system performs a safety function in ESBWR design as it provides power to safety-related battery chargers and safety-related UPS during normal, abnormal and accident conditions. The staff recognizes that the passive plants are designed to rely on passive systems to perform design-basis functions of the reactor coolant makeup and decay heat removal. However, the passive designs also include active systems that provide defense-in-depth capabilities for reactor coolant makeup and decay heat removal. These active systems are the first line of defense to reduce challenges to the passive systems in the event of transients or plant upsets.

Therefore, the staff concludes that the offsite power system plays an important role in ESBWR design. In order for the staff to ensure the adequacy of the offsite power system design at North Anna 3, the offsite power system must satisfy the acceptance criteria based on meeting the relevant requirements of GDC 4. NUREG-0800, "Standard Review Plan," Section 8.2.II provides sufficient guidance with respect to the portions of GDC 4 that are applicable to offsite power systems. The staff requests that the applicant provide a discussion on how the requirements of GDC 4 are met.

08.02-35

In response to RAI 8.2-18, the applicant, on July 28, 2008, stated that Unit 3 is an ESBWR, which is a passive design and, as such, does not rely on offsite power and thus, no credit is taken for offsite power in the event of a design basis accident. Also, offsite power system is not a safety-related structure, system or component for Unit 3. The applicant concluded that GDC 2 is not applicable to the Unit 3 offsite power.

The NRC staff finds the applicant's response to be unacceptable. The staff believes that the offsite power system performs a safety function in ESBWR design as it provides power to safety-related battery chargers and safety-related UPS during normal, abnormal and accident conditions. The staff recognizes that the passive plants are designed to rely on passive systems to perform design-basis functions of the reactor coolant makeup and decay heat removal. However, the passive designs also include active systems that provide defense-in-depth capabilities for reactor coolant makeup and decay heat removal. These active systems are the first line of defense to reduce challenges to the passive systems in the event of transients or plant upsets.

Therefore, the staff concludes that the offsite power system plays an important role in ESBWR design. In order for the staff to ensure the adequacy of the offsite power system design at North Anna 3, the offsite power system must satisfy the acceptance criteria based on meeting the relevant requirements of GDC 2. NUREG-0800, "Standard Review Plan," Section 8.2.II provides sufficient guidance with respect to the portions of GDC 2 that are applicable to offsite power systems. The staff requests that the applicant provide a discussion on how GDC 2 requirements are met.

08.02-36

In response to RAI 8.2-19, on July 28, 2008, the applicant stated that North Anna 3 complies with the requirements of 10 CFR 50.65(a)(4). In particular, the subject regulation is one aspect of the "Maintenance Rule" (10 CFR 50.65), an operational program, the implementation of which is addressed by Item 17 in FSAR Table 13.4-201 and the content of which is discussed in FSAR Section 17.6. However, the staff finds that the applicant did not address the applicability of the Maintenance Rule to switchyard equipment. The staff requests that the applicant address applicability of the Maintenance Rule to switchyard exit the system degradation and discuss actions required before performing grid-risk-sensitive maintenance activities of switchyard components (see NRC Generic Letter 2006-02: Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power referenced in SRP section 8.2).

08.02-37

In response to RAI 8.2-24, you have stated that description of the station ground grid is provided in Section 8, Appendix 8A. However, the staff notes that the North Anna Station ground grid consists of the switchyard ground grid, existing Unit 1 and 2 ground grid and the new Unit 3 ground grid. The staff requests that the applicant discuss the interface and impact of station grounding due to addition of Unit 3 ground grid to the existing station ground consisting of switchyard and Unit 1 and 2 grounding. In addition, please provide a summary description of the existing grounding system at North Anna and the proposed grounding of Unit 3 in order to achieve a single point ground at that site.

16-1

In its combined license (COL) application for North Anna Unit 3, Dominion proposes that certain COL action (or information) items be addressed after COL issuance by the COL holder as a condition of the COL. The site-specific information for completing these action items mostly consists of numerical values of technical specification (TS) limits and is indicated by the use of brackets, reviewer's notes, footnotes, or other "placeholder" indicators in the generic technical specifications (GTS), and also in the proposed plant-specific technical specifications (PTS). However, this site-specific information must be provided or confirmed by the COL applicant in the COL application. The proposal for the COL holder to provide this information after COL issuance as a condition of the COL is not consistent with applicable regulations and statutes (see COL/DC-ISG-8, "Technical Specifications").

Accordingly, for each site-specific information item, provide or confirm, in order of preference, (1) the site-specific information, (2) useable information that bounds the site-specific information, or (3) a reference to an associated TS in PTS administrative controls Section 5.5, "Programs and Manuals," or 5.6, "Reporting Requirements," that requires using an NRC-approved methodology to determine the site-specific information and establishing a program or report in which the site-specific information will be documented external to the PTS.

The applicant shall describe in its COL application, including in the PTS bases as applicable (i.e., TS, TS Bases and FSAR), the following:

- For site-specific information, the method used to determine the information and why the information is useable for facility operation in all applicable operational modes including power operation up to the proposed thermal power limit.
- For bounding information, the method used to determine the information and that the information is bounding to the site-specific information, and why the information is useable for facility operation in all applicable operational modes including power operation up to the proposed thermal power limit.

- or –

Regarding the methodology approach, the administrative control TS shall (a) explicitly reference by title and date the NRC-approved methodology that is specified for determining the site-specific information, (b) require establishing an associated document or report in which to record and maintain the site-specific information external to the PTS, and (c) specify any other information or restrictions necessary and appropriate to satisfy 10 CFR 50.36. This would satisfy 10 CFR 50.36 with respect to the relocated site-specific information by virtue of the approved methodology and the restrictions spelled out in the administrative control TS; this is consistent with the standard technical specification administrative controls that require maintaining specified plant operating limits in the core operating limits report and the reactor coolant system pressure temperature limits report.

To facilitate a comprehensive response to this information request, a listing of all COL action, or information, items identified in chapters 16 and 16B of the ESBWR design control document, revision 5, is attached. The applicant is requested to verify that the list is complete and in addition identify which of three options listed above will be used to satisfy the requirements of 10 CFR 50.36 for each item. If the methodology approach is taken, then the applicant should explain why one of the other two options was not taken. Please see the attached tables for the list of items.