PMNorthAnna3COLPEmails Resource

From: Wanda.K.Marshall@dom.com
Sent: Friday, September 05, 2008 8:36 AM
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Subject: Response to Request for Additional Information Letter No. 020
Attachments: 090408 D ltr. Response to Request for Additional Information Letter No. 020.pdf

Importance: High

cc list:

Please see attached.

Wanda K. Marshall
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COL Project Team
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From: Wanda.K.Marshall@dom.com

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Options

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Recipients Received:	

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Dominion®

September 4, 2008

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

Serial No. NA3-08-090R
Docket No. 52-017
COL/BCB

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 020
(FSAR CHAPTERS 9 AND 11)

On July 27, 2008, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA). The responses to the following RAIs are provided in Enclosures 1 through 4:

- RAI Question 09.05.01-16 Migration of Smoke, Hot Gases or Fire Suppressant
- RAI Question 09.05.01-17 Fire Water Supply Locations
- RAI Question 09.05.01-18 Fire Fighting Strategies for Control Room Cabinets
- RAI Question 11.04-3 Low-Level Radioactive Waste Storage

This information 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

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 September, 2008

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. 020, RAI Question No. 09.05.01-16
2. Response to NRC RAI Letter No. 020, RAI Question No. 09.05.01-17
3. Response to NRC RAI Letter No. 020, RAI Question No. 09.05.01-18
4. Response to NRC RAI Letter No. 020, RAI Question No. 11.04-3

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
T. A. Kevern, NRC
J. T. Reece, NRC
J. J. Debiec, ODEC
G. A. Zinke, NuStart/Entergy
T. L. Williamson, Entergy
R. Kingston, GEH
K. Ainger, Exelon
P. Smith, DTE

ENCLOSURE 1

Response to NRC RAI Letter No. 020

RAI Question No. 09.05.01-16

NRC RAI 09.05.01-16

Smoke, hot gases and fire suppressant migration between redundant trains – Regulatory Guide (RG) 1.206, Regulatory Position C.III.1, Section C.I.9.5.1.1 identifies that the COL applicant should describe plans to verify that purchased components required for postfire safe-shutdown are not impacted by indirect effects of fire such as smoke migration from one fire area to another. SECY-93-087 and SECY-90-016 include criteria that the design should ensure that smoke, hot gases, or fire suppressant will not migrate into other fire areas to the extent that safe shutdown could be adversely affected. Provide a description of the plant features that will provide this assurance, including acceptance criteria for fire barrier penetration seals, as well as the use and qualification of smoke dampers. Verify that fire dampers that do not close on smoke detection will not be relied upon to prevent the migration of smoke from one redundant train area to another. Also, describe how the fire hazards analysis will evaluate the potential for the migration of smoke, hot gases or fire suppressant to prevent safe shutdown, including any impact on the ability to access a fire area for manual suppression or, in the case of a control room evacuation, any impact on the ability to access and operate the remote shutdown panel.

Dominion Response

Migration of Smoke, Hot Gases, or Fire Suppressant

FSAR Section 9.5.1 incorporates by reference DCD Section 9.5.1, which describes the ESBWR plant design features that address building ventilation, fire barriers, and smoke control necessary for safe shutdown. As stated in DCD Section 9.5.1.12, the ESBWR fire protection design satisfies the guidance in the Standard Review Plan, Section 9.5.1 and BTP SPLB 9.5-1, that smoke, hot gases, or the fire suppressant does not migrate into other fire areas to the extent that safe shutdown capabilities, including operator actions, could be adversely affected. This is accomplished with a combination of fire dampers and other barriers, smoke control capabilities, and minimal required operator actions. Details are provided in the fire hazards analysis in DCD Appendix 9A. For example, acceptance criteria for fire barrier penetration seals and other fire protection equipment assumed in the fire hazards analysis is discussed in DCD Appendix 9A, Section 9A.2.4. There are no fire protection-related site-specific design features that are required to ensure safe shutdown of the plant.

Fire Damper Operation

If safe shutdown can be adversely affected by smoke migration into other areas, the ESBWR design requires fire dampers to be smoke-rated, in addition to closing on smoke detection. Fire protection/smoke control provisions for ventilation for the various building areas are described in DCD Section 9.5.1.11.

Fire Hazards Analysis

The fire hazards analysis that demonstrates the safe shutdown capability of the ESBWR plant is provided in DCD Appendix 9A. Section 9A.3 describes the analysis approach. No site-specific analysis is necessary to demonstrate the safe shutdown of the plant.

Proposed COLA Revision

None.

ENCLOSURE 2

Response to NRC RAI Letter No. 020

RAI Question No. 09.05.01-17

NRC RAI 09.05.01-17

Figures 9.5-201, 202, and 203 implement COL information Item 9.5.1.4-A and show the fire water loads of the plant. According to Appendix 9A FHA, there are suppression systems for the Fire Pumps, Warehouse, and Dirty/Clean Lube Oil Storage Tanks, but these systems are not indicated on Figure 9.5-201. The applicant should verify that these locations require a fire water supply and show these locations on Figure 9.5-201. The Warehouse is not identified on Figure 9A.2-33R but is incorporated by reference by North Anna 3's COLA Appendix 9A FHA. The applicant should include the Warehouse on Figure 9A.2-33R. A typo has been indentified on page 9-42 of North Anna 3's COLA Appendix 9A FHA. The applicant should change F7454 to F7154. Additionally, Figure 9.5-1 is identified by North Anna 3's COLA Section 9.5.1.4 as applicable to North Anna 3. Figure 9.5-1 shows one "From Yard Piping" connections to the Turbine Building while Figure 9.5-201 shows that there are two to "DCD Figure 9.5-1" connections. The applicant should revise Figure 9.5-1 as applicable.

Dominion Response

The specific items identified in the RAI are addressed as follows:

- The fire protection pumps, located in the Station Water Intake Building, will be protected by fire water. FSAR Figure 9.5-201 will be revised to show a fire water supply to the Station Water Intake Building.
- The North Anna Unit 3 design does not include a dedicated warehouse building, but will use existing warehouse buildings that support North Anna Units 1 and 2. Therefore, FSAR Figures 9.5-201 and 9A.2-33R do not need to be revised to show a Unit 3 warehouse. FSAR Section 1.1.1.7, Appendix 9A, and the Departures Report will be revised to reflect this departure from the DCD.
- The lube oil storage tanks require a fire water supply. The fire water supply to these tanks is part of the ESBWR standard plant design and, therefore, is not shown on FSAR Figure 9.5-201.
- The typographical error in FSAR Section 9A.7 (COLA Revision 0, Page 9-42) will be corrected. "F7454" will be changed to "F7154."
- FSAR Figure 9.5-201 is consistent with DCD Revision 5 Figure 9.5-1, which shows two yard connections to the turbine building.

Proposed COLA Revision

The FSAR and Departures Report will be revised as stated in the above response. These changes are shown on the attached FSAR and Departures Report markups.

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.

1.1.1.6 Acronyms

In addition to the summary list of acronyms in the FSAR frontmatter, acronyms are defined at their first occurrence in FSAR text.

1.1.1.7 Incorporation by Reference

10 CFR 52.79 states in part that, "The final safety analysis report need not contain information or analyses submitted to the Commission in connection with the design certification, provided, however, that the final safety analysis report must either include or incorporate by reference the standard design certification final safety analysis report and must contain, in addition to the information and analyses otherwise required, information sufficient to demonstrate that the site characteristics fall within the site parameters specified in the design certification." Therefore, because this COLA references the ESBWR DC application, ~~the~~ this FSAR incorporates ~~by reference~~ the ESBWR DCD ~~with no departures~~ by reference, with the departures presented in COLA Part 7, and ~~certain~~ with supplemental information, as appropriate (see Section 1.1.1.10). References in this FSAR to the DCD should be understood to mean the ESBWR DCD, Tier 2, submitted by GE-Hitachi Nuclear Energy Americas LLC (GEH), as Revision 4.

1.1.1.8 Departures from the Standard Design Certification (or Application)

A departure is a plant-specific "deviation" from design information in a standard DC rule or, consistent with Section C.III.6 of RG 1.206, from design information in a DC application.

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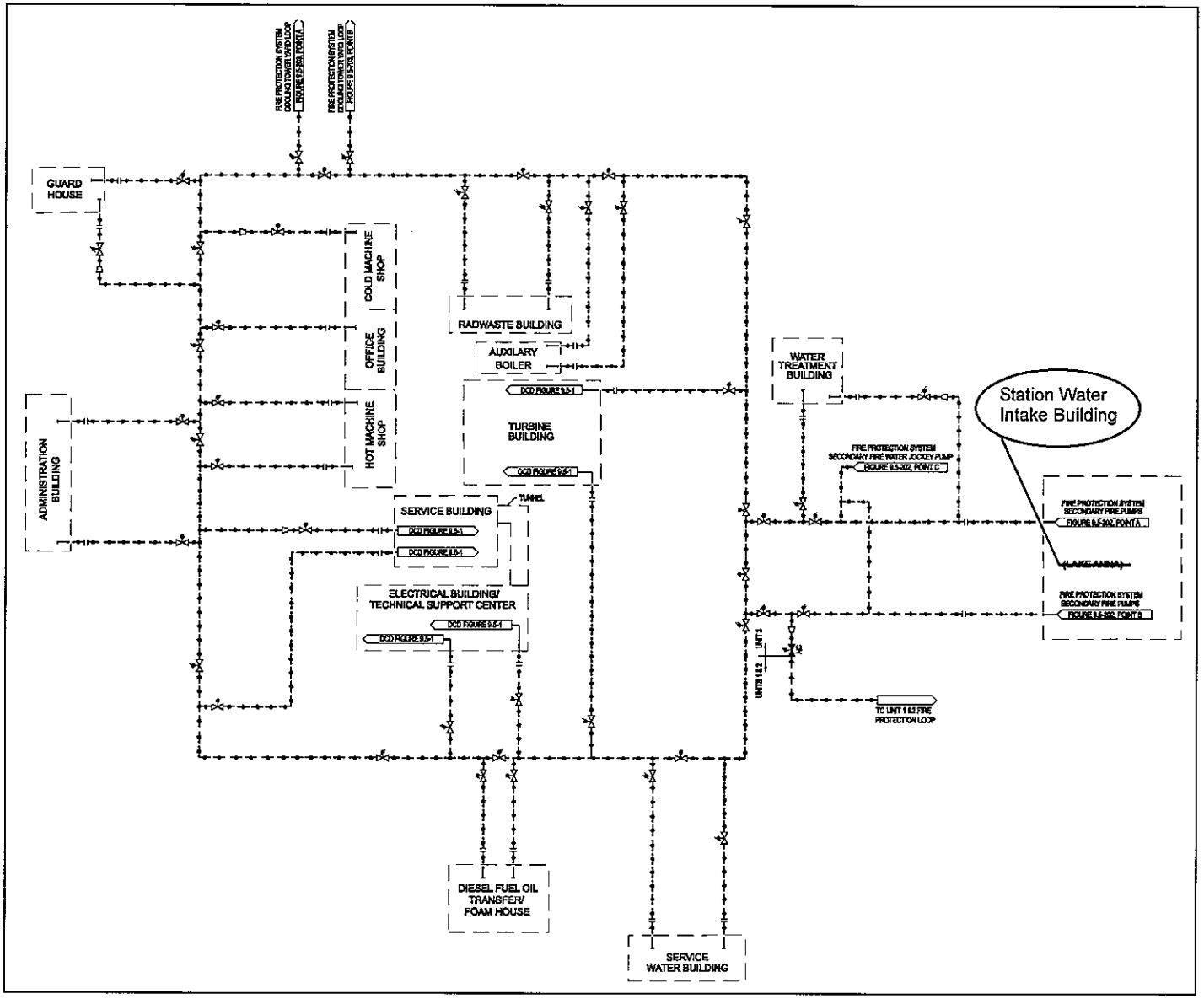
1. Any information which, if lost, misused, modified, or accessed without authorization, can reasonably be foreseen as causing harm to the public interest, the commercial or financial interest of the entity or individual to whom the information pertains, the conduct of NRC and Federal programs, or the personal privacy of individuals. SUNSI has been organized into the following seven groups:
   - Allegation information
   - Investigation information
   - Security-related information
   - Proprietary information
   - Privacy Act information
   - Federal, State, Foreign Government, and international agency information
   - Sensitive internal information

"Guidance for Electronic Submissions to the NRC," Rev. 2, 10/04/07

NAPS COL 9.5.1-4A

Figure 9.5-201 Fire Protection System; Main Yard Loop



Appendix 9A Fire Hazards Analysis

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

Contents

NAPS CDI

Replace 9A.4.9 Service Water/Water Treatment Building with 9A.4.9 Service Water Building.

Replace 9A.5.9 Service Water/Water Treatment Building with 9A.5.9 Service Water Building.

Add 9A.5.10, Water Treatment Building

9A.1 Introduction

NAPS CDI

In the first sentence of the first paragraph, replace "Service Water/Water Treatment Building" with "Service Water Building, Water Treatment Building,"

and

Replace "Pump House" with "Circulating Water Pump House." Replace "Station Water Pump House," with "Station Water Intake Building."

NAPS DEP 9A.1-1

In the first sentence of the first paragraph, delete "Warehouse."

9A.2.1 Codes and Standards

Add the following second paragraph.

NAPS SUP 9A-01

The codes and standards that are applicable to the design of the site-specific portions of the yard are listed in Table 9.5-201. Tables 1.9-202, 1.9-203, and 1.9-204 identify the relevant editions for each applicable code and standard. These codes and standards also apply to the operational aspects of the fire detection and suppression systems.

	9A.3.1 **Review Data**
NAPS CDI	In the second paragraph, first sentence replace "Pump House" with "Circulating Water pump House," and "Station Water Pump House," with "Station Water Intake Building." and Replace "Service Water/Water Treatment Building" with "Service Water Building, Water Treatment Building."
NAPS DEP 9A.1-1	In the first sentence of the second paragraph, delete "Warehouse."
	9A.4.7 **Yard**
	Replace the first paragraph with the following.
STD COL 9A.7-1-A	The Yard includes all portions of the plant site external to the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, and Electrical Building. The fire zone drawings for the site-specific portions of the yard are provided in Figures 9A.2-201 through 9A.2-206.
	Replace the second paragraph with the following.
NAPS COL 9A.7-2-A	A detailed fire hazards analysis of the yard area that is outside the scope of the certified design can not be completed until cable routing is performed during final design. This information will be provided six months prior to fuel load. The FSAR will be revised to include this information, as appropriate, as part of a subsequent FSAR update.
NAPS DEP 9A.1-1	In the first sentence of the third paragraph, delete "Warehouse." Delete the eighth paragraph.
	9A.4.9 **Service Water/Water Treatment Building**
NAPS CDI	Replace the title with "Service Water Building." In the first sentence of the first paragraph, replace "Service Water/Water Treatment Building (SF/WT)" with "Service Water Building." Replace "SF/WT" with "Service Water Building" in the first, second, and third paragraphs.

not be completed until cable routing is performed during final design. This information will be provided six months prior to fuel load.

9A.7 COL INFORMATION

9A.7-1-A Yard Fire Zone Drawings

NAPS COL 9A.7-1-A This COL item is addressed in Section 9A.4.7.

9A.7-2-A FHA for Site-Specific Areas

NAPS COL 9A.7-2-A This COL item is addressed in Sections 9A.4.7, 9A.5.7, 9A.5.8, 9A.5.9, and 9A.5.10.

Table 9A.5-7 Revisions

NAPS COL 9A.7-2-A

Delete Fire Area F4202.

Replace Fire Area F5159 with F5159R.

Replace Fire Area F5169 with F5169R.

Delete Fire Area F7100.

After Fire F7150b, add Fire Areas F7151, F7152, F7153, ~~F7454~~ F7154, F7161, F7162, F7163, F7164, and F7174.

Replace Fire Area F7180 with F7180R.

Add Fire Area F7188.

Delete Fire Area F7200.

Delete Fire Area F7300.

Add Fire area F7301, F7302, F7303, and F7304.

Add Fire Area F7305.

Delete Fire Area F7400.

Replace Fire Area F7700 with F7700R.

Replace Fire Area F7900 with F7900R.

Add Fire Areas F8101, F8102, and F8103.

Add Fire Areas F8108, F8105, F8106 and F8108.

Add Fire Areas F8181, F8182, F8183, F8184, F8185, F8186, F8187, F8188, and F8283.

Add Fire Area F8200.

Table 9A.5-7 Departure

NAPS DEP 9A.1-1 Delete Fire Area F7500.

DEPARTURES

A *departure* is a plant-specific deviation from design information in a standard design certification rule.

~~There are no departures on this COL application from the ESBWR standard design described in the DCD. See COLA Part 2 for additional information regarding the ESBWR DCD.~~

Departure: NAPS DEP 9A.1-1 – Warehouse

Request

Delete the Warehouse from the ESBWR standard plant design for Unit 3. The Warehouse is one of a number of fire areas established and evaluated in DCD Appendix 9A. However, in lieu of the standard plant design Warehouse, Unit 3 will use an existing North Anna Units 1 and 2 warehouse building.

Justification

This departure is acceptable because deletion of the ESBWR standard plant design warehouse from the facility fire hazards analysis does not impact any safe shutdown systems or equipment.

ENCLOSURE 3

Response to NRC RAI Letter No. 020

RAI Question No. 09.05.01-18

NRC RAI 09.05.01-18

Regulatory Guide 1.206, Regulatory Position C.III.1, Section C.I.9.5.1.1 identifies that the COL applicant should provide information on the fire protection operational program. The ESBWR DCD took exception to BTP SPLB 9.5-1 (RG 1.189 for North Anna 3) guidance to provide smoke detectors in the control room cabinets and consoles. The ESBWR DCD justification for the exception stated that any fire would be quickly detected and manual fire suppression activities would be initiated quickly upon discovery of a fire. The applicant should describe its procedures and/or plans that will facilitate the rapid identification of the specific cabinet/console that is on fire and facilitate rapid access to the cabinets/consoles for fire fighting. Because development of specific procedures and/or plans and fire fighting strategies for these areas are, in part, dependent upon the cabinet design features that will facilitate the rapid identification of the specific cabinet/console that is on fire, the applicant should also identify its plans for ensuring that its procedures and/or plans and fire fighting strategies are consistent with and are implementable for cabinet designs that are installed in the control room.

Dominion Response

As discussed in DCD Section 9.5.1.12.1.2, the amount of transient combustibles within the control room is limited. Ionization or photoelectric smoke detectors are installed throughout the Main Control Room Complex to provide early warning of fire during the incipient stage. The Main Control Room Complex is continuously manned so that any fire is quickly detected and manual fire suppression activities would be initiated quickly upon discovery of a fire.

Requirements to develop specific fire fighting procedures and train fire brigade members are addressed in the DCD and the FSAR. DCD Section 9.5.1.15.5 requires that procedures be developed to, in part, define the strategies established for fighting fires in safety-related areas and areas presenting a hazard to safe shutdown equipment. Strategies for fighting fires in the Main Control Room will be included in these procedures and will address specific cabinet design features, as appropriate. The development of these detailed fire protection procedures will be accomplished after COL issuance as described in FSAR Table 13.5-202, which provides the specific implementation milestones for fire protection procedures. DCD Section 9.5.1.15.4.2 discusses the fire brigade training and specifies as part of the course curriculum detailed review of firefighting strategies and procedures. Implementation of fire brigade training will be accomplished as part of the implementation of the fire protection program. FSAR Table 13.4-201 provides overall implementation milestones for the fire protection program.

Proposed COLA Revision

None.

ENCLOSURE 4

Response to NRC RAI Letter No. 020

RAI Question No. 11.04-3

NRC RAI 11.04-3

FSAR Section 11.4.1, STD COL 11.4-4-A states that the proposed plant will not utilize temporary low-level radioactive waste storage facilities to support plant operation. The ESBWR DCD, however, provides the capacity to store the amount of low-level radioactive waste that could be generated in 6 months of operation. Accordingly, the staff requests the applicant to describe the facilities planned for long-term storage of lowlevel radioactive wastes projected to be generated during the operation of North Anna Unit 3, and the operational program addressing the long-term management and storage of such wastes using the guidance of RG 1.206 and Section 11.4 of the Standard Review Plan (NUREG-0800, Rev. 3).

Dominion Response

Dominion is developing clarifying information to respond to this RAI. This information will be provided in a future submission of the COLA.