

PMNorthAnna3COLPEmails Resource

From: Thomas Kevern
Sent: Monday, August 11, 2008 9:14 AM
To: Dominion.Naps3ColaRAI@DOM.COM
Cc: Regina.Borsh@dom.com; john.hayden@dom.com; Wanda.K.Marshall@dom.com;
NorthAnna3COL Resource; Andrea Johnson; Jerry Hale
Subject: North Anna RAI Letter #024
Attachments: RAI Ltr#24ML0822105470.pdf

Gina:

Attached is the subject RAI letter - includes questions re SRP Sections 02.04.12, 12.02, 12.03-12.04, 12.05, 14.02, and 14.03.03.

Please contact me if questions.

Tom

Hearing Identifier: NorthAnna3_Public_EX
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Subject: North Anna RAI Letter #024
Sent Date: 8/11/2008 9:13:47 AM
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From: Thomas Kevern

Created By: Thomas.Kevern@nrc.gov

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Recipients Received:

August 8, 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. 024
(SRP SECTIONS: 02.04.12, 12.02, 12.03-12.04, 12.05, 14.02, and 14.03.03)
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

August 8, 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. 024
(SRP SECTIONS: 02.04.12, 12.02, 12.03-12.04, 12.05, 14.02, and 14.03.03)
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: RLaura, NRO
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E-RAI Tracking No. 203, 751, 859, 860, 861, 874, 877,
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OFFICE	TR: CHPB	BC: CHPB	PM:DNRL:NGE1	OGC (NLO)	PM:DNRL:NGE1
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DATE	07/16/08	07/30/08	07/30/08	08/04/08	08/08/08

*Approval captured electronically in the electronic RAI system.

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**Request for Additional Information
North Anna, Unit 3
Dominion
Docket Number 52-017**

SRP Sections: 02.04.12 - Groundwater; 12.02 - Radiation Sources; 12.03-12.04 - Radiation Protection Design Features; 12.05 - Operational Radiation Protection Program; 14.02 - Initial Plant Test Program - Design Certification and New License Applicants; 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria Application: FSAR Sections 2.4.12, 12.2.1.1.2, 12.2.1.5, 12.3.1.3, 12.3.4, 12.3.7, 12.6, 12.5.4, Appendix 12BB, 13.4, 14.2.9.1.3; Part 10

QUESTIONS

02.04.12-1

Staff has reviewed the groundwater analysis results described in FSAR Section 2.4.12. In accordance with 10 CFR 100.20(c)(3) and 10 CFR 52.79(a)(1)(iii) NRC staff requests that the applicant: (a) provide the technical bases for the assumptions, parameter values, and boundary conditions of the MODFLOW model(s) used to evaluate post-construction groundwater heads, (b) provide a discussion of the alternative explanations considered to explain the head at well OW-901 and the discrepancy between the observed head at this well and the model results, and (c) provide the technical basis for the confidence in model predictions of post-construction groundwater heads given this discrepancy.

12.02-4

In Tier 2, Section 12.2.4 of the ESBWR DCD, GEH includes reference to COL information item 12.2-4-A, Other Contained Sources. Section 12.2 of the North Anna FSAR does include "STD SUP 12.2-1" which provides a supplemental section (Section 12.2.1.5, Other Contained Sources) to the FSAR which appears to address the proposed resolution of COL information item 12.2-4-A. However, neither Table 1.10-201 (Summary of FSAR Sections Where DCD COL Items Are Addressed), or Section 12.2 of the FSAR, address the COL Item 12.2-4-A. Please correct this apparent discrepancy to the FSAR by modifying both Table 1.10-201 and Section 12.2 of the North Anna FSAR (and any other applicable sections of the FSAR) to address COL information item 12.2-4-A.

12.02-5

FSAR Section 12.2.1.5, "Other Contained Sources," (STD SUP 12.2-1) states that the control and use of the additional contained by-product, source, or special nuclear material sources which are not part of the permanent plant design and which are not listed in the ESBWR DCD will be governed by plant procedures.

- a) State whether these procedures will be part of the Radiation Protection Program, as described in Section 12.5 of the North Anna COL. Additionally, state whether these materials will be controlled under the procedures described in Section 12.5.4.10 (Radioactive Material Control) of NEI 07-03.
- b) 10 CFR 20.1801 requires licensees to secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.

Describe how the additional contained sources described in STD SUP 12.2-1 (response to COL Information Item 12.2-4-A) will be secured in accordance with 10 CFR 20.1801. Describe how the materials will be tracked.

c) STD SUP 12.2-1 (response to COL Information Item 12.2-4-A) of the COL application states that "Radiography is conducted in accordance with approved procedures". Describe what is meant by approved procedures.

12.02-6

FSAR Section 12.2.1.5, "Other Contained Sources," (STD SUP 12.2-1) states that additional contained sources are "typically used as calibration or radiography sources." State any uses besides calibration or radiography that these sources will be used for. If there will be no additional uses, reword the previous statement to show these additional sources will only be used for calibration and radiography sources.

12.02-7

Regulatory Guide 1.206 states that the applicant should describe any required radiation sources containing byproduct, source, and special nuclear material that may warrant shielding considerations, and, for any such sources, should provide a listing by isotope, quantity, form, and use for all of these sources that exceed $3.7 \text{ E}+9 \text{ Bq}$ (100 millicuries).

a) Describe the uses and shielding requirements of any radiation sources containing byproduct, source, and special nuclear material not described in the ESBWR DCD that may require shielding design considerations.

b) Provide a listing, by isotope, quantity, form, and use, of any of the sources described in your response to a) above that exceed 100 millicuries.

12.02-8

STD SUP 12.2-1 (Section 12.2.1.5) states that 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. Specify your criteria for determining when radiation sources would not require special handling, storage, or use procedures for radiation protection purposes.

12.02-9

Tier 2, Section 12.2.1.1.2, of the GEH ESBWR DCD states that during the first refueling outage, the Cf-252 reactor startup source and source holder will be removed from the reactor and moved to a designated location in the spent fuel pool (SFP). The DCD then states that operations and radiation protection personnel determine placement and duration of residence for the Cf-252 source and holder in the SFP. Identify in the North Anna FSAR where the issue of placement and duration of residence for the Cf-252 source and holder in the SFP is addressed.

12.03-12.04-1

10 CFR 20.1501 requires the ability to identify potential radiological hazards. COL Information Item COL 12.3-2-A requires the COL applicant to discuss the placement of portable airborne radiation monitors as well as the operational considerations. COL Section 12.3.4 states that the placement of these monitors is located in COL

Section 12.5. COL Section 12.5 references NEI template 07-03. NEI template 07-03 discusses types of radiation monitors that may be used at a plant as well as the corresponding operational considerations that will be considered for these monitors. However, this template does not discuss the criteria for placement of the airborne portable monitors.

a) Describe the criteria for placement and the sensitivities of portable airborne monitors that are used for normal operation, anticipated operational occurrences, and accident conditions.

b) Verify that North Anna, Unit 3, will have a sufficient number of portable airborne radiation monitors to sample air at all normally occupied locations where airborne radioactivity may exist.

12.03-12.04-2

Per 10 CFR 20.1602, COL applicants must institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to Very High Radiation Areas. Additionally, Section 12.5.4.4 of NEI 07-03 states that COL applicants should provide detailed drawings showing isometric views of each Very High Radiation Area and indicate physical access controls and radiation monitor locations for each area. Please describe the additional measures that will be used to prevent access for each Very High Radiation area and provide detailed drawings showing the isometric views and indicate physical access controls and radiation monitors for each Very High Radiation area.

12.03-12.04-3

STD CDI for North Anna FSAR Section 1.2.2.12.15, Zinc Injection System, states that a Zinc Injection System will not be utilized at North Anna, Unit 3. One of the benefits of utilizing a Zinc Injection System to inject depleted zinc (DZO) in the feedwater is to suppress cobalt plate-out on reactor building piping. Minimizing the plate-out of radioactive cobalt on reactor building piping can lead to potentially lower dose rates in the vicinity of this piping and result in correspondingly lower doses to personnel in this portion of the plant. Justify your decision to not utilize a Zinc Injection System at North Anna, Unit 3 in light of the requirement in 10 CFR 20.1101(b) which states that the licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses that are as low as reasonably achievable (ALARA.).

12.03-12.04-4

Since the North Anna FSAR for Chapter 12 is based on the format of the Tier 2 ESBWR DCD for Chapter 12, the FSAR contains Section 12.6 entitled "Minimization of Contamination and Radwaste Generation". However, in response to a staff RAI, GEH will be revising the DCD to incorporate the material contained in Section 12.6 of the DCD into Section 12.3 of the DCD. Therefore, the applicant should revise Chapter 12 of the North Anna FSAR to be consistent with the format of Chapter 12 of the ESBWR DCD.

12.05-1

Per 10 CFR 50.34 (f)(2)(xxvii) (as supplemented by the criteria in Item III.D.3.3 of NUREG-0737) the Applicant shall provide equipment and associated training and procedures for accurately monitoring inplant radiation and airborne radioactivity (iodine concentration) in areas within the facility where plant personnel may be present during an accident and for a broad range of routine conditions. NEI template 07-03, which STD COL 12.5-2-A references, does not describe the numbers of the instruments that will be available to comply with this requirement, nor does it describe the training program and procedures on the use of these instruments.

- a) Provide the number of instruments that the licensee will have available for use to determine the airborne iodine concentration in areas within the facility where plant personnel may be present during an accident.
- b) Verify that the Applicant will have procedures and a training program to instruct plant personnel on how to accurately determine the airborne iodine concentration in areas within the facility where plant personnel may be present during an accident and for a broad range of routine conditions.

12.05-2

NEI template 07-03 contains several sections that allow for site-specific alterations. Provide descriptions of any design or site-specific information for these areas. Areas which may have deviations include:

- a) Alternative staff assigned to specific Radiation Protection Responsibilities
- b) Alternative or additional Radiation Protection Facilities. Also, list facilities listed in the template that will be located off site and functions that will be carried out at another location or through a vendor.
- c) Modified radiation protection monitoring instrumentation or equipment.
- d) Use of special use respirator filters and disposable supplied air suits.
- e) Alternate or additional procedures for maintaining exposures ALARA.

12.05-3

For each of the Radiation Protection Program Milestones listed below (and shown in Table 13.4-201 of the North Anna FSAR), provide a listing of the specific operational radiation protection program elements and procedures that will be implemented consistent with each milestone.

- a) Prior to the initial receipt of by-product, source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18), and thereafter, when such radioactive materials are possessed under this license.
- b) Prior to receiving reactor fuel under this license, and thereafter, when reactor fuel is possessed under this license.

c) Prior to initial loading of fuel in the reactor.

d) Prior to initial transfer, transport or disposal of radioactive materials. Verify that, prior to initial loading of fuel in the reactor, the radiation protection program described in NEI template 07-03 will be fully implemented, with the exception of the organization, facilities, equipment, instrumentation, and procedures necessary for transferring, transporting or disposing of radioactive materials in accordance with 10 CFR Part 20, Subpart K, and applicable requirements in 10 CFR Part 71. In addition, verify that the position of Radiation Protection Manager will be filled and at least one radiation protection technician for each operating shift, selected, trained and qualified consistent with the guidance in RG 1.8, will be onsite and on duty when fuel is initially loaded in the reactor, and thereafter, whenever fuel is in the reactor.

14.02-8

In the case of radiation monitors and/or survey instruments with range selection, the "General Test Methods and Acceptance Criteria" in FSAR Section 14.2.9.1.3, please include a clarifying bullet to the the effect, "proper functioning and operation of range selection and response in each range."

14.03.03-1

For ITAAC Item 1 in Table 2.4.2.1, "ITAAC For Plant Service Water Reserve Storage Capacity," the design commitment is concerned with inventory of cooling water sufficient for RCCWS to cool from hour 0 through day 7, where as the acceptance criteria is concerned with usable water volume in cooling tower basins and pump forebay above pump minimum submergence water level and below minimum normal operating level, is a minimum of 2.6 million gallons. The design commitment and acceptance criteria are not in agreement or in parallel. SRP Section 14.3, Appendix A, Section IV.4.B. 'Column 3 -Acceptance Criteria' states that acceptance criteria should be objective and unambiguous. Please revise the design commitment and acceptance criteria so that the two are in agreement or in parallel. Also, the acceptance criteria should be objective and unambiguous, as required by SRP Section 14.3, Appendix A.