NorthAnnaRAIsPEm Resource

From: Barry Bryant (Generation - 6) [barry.bryant@dom.com]
Sent: Tuesday, October 21, 2014 4:12 PM
To: Buckberg, Perry
Cc: Patel, Chandu; Joseph Hegner (Generation - 6); Regina Borsh (Generation - 6); Tony Banks (Generation - 6); David B Evans (Generation - 6)
Subject: RE: Draft North Anna 3 RAIs - Radiation Protection
Attachments: Draft RAI_7682 10-17-14.docx; Draft RAI_7690 10-17-14.docx

Hi Perry,

We reviewed draft RAIs 7682 and 7690 and offer the following comments and recommendations.

RAI 7682, Questions 26264 and 26265
The answers to these two questions are contained in a calculation. As a more efficient and appropriate means of answering the questions, we suggest that the staff review the calculation. If this approach is acceptable, we will place the calculation in the NA3 reading room within one week.

RAI 7682, Question 26266
We understand the question. A clarification call is not needed.

RAI 7682, Question 26267
The FSAR contains the information needed to verify the accuracy of the dose rates at various distances from the ISFSI, as described in Part 1 of the question. In addition, Monte Carlo is an industry accepted and more sophisticated method (vs. one over R-squared rule) for calculating dose rates. It's not clear why we would be asked to verify the accuracy of the calculations. We request a clarification call to better understand what the staff needs.

RAI 7690
Parts 1, 2, and 4 of this question request information regarding SSCs within the scope of the DCD. The NA3 COLA has no departures related to these SSCs.
Part 3 of this question is addressed in DCD Section 11.2.3, Technical Specification Section 5.5.1, and FSAR Section 11.2.3.2.
This RAI question does not seem to be necessary because the information requested is already addressed in the DCD, TS, and FSAR. If you disagree, we would like to have a clarification call to better understand what the staff needs.

Please let me know if you have any questions or need additional information. Thank you.

Barry

Barry C. Bryant, P.E.
Dominion Resources Services, Inc.
North Anna 3 Project
804.273.3279
barry.bryant@dom.com

From: Buckberg, Perry
Sent: Friday, October 17, 2014 9:45:57 AM (UTC-05:00) Eastern Time (US & Canada)
To: Na3Rai Dom Mailbox

Cc: Patel, Chandu; NorthAnnaRAIsPEm Resource; Hinson, Charles; McCoppin, Michael; Williams, Stephen
Subject: Draft North Anna 3 RAIs - Radiaton Protection

Hello,

Please see attached draft RAIs 7682 and 7690 related to radiation protection for the North Anna 3 COLA.
Please let me know if you need clarification on these draft RAIs by CoB Tuesday.

Thanks,

Perry Buckberg
Senior Project Manager
phone: (301)415-1383
fax: (301)415-6406
perry.buckberg@nrc.gov
U.S. Nuclear Regulatory Commission
Office of New Reactors
Mail Stop T-06D38M
Washington, DC, 20555-0001

Hearing Identifier: NorthAnna3_eRAI
Email Number: 68

Mail Envelope Properties (BF749D00C959A747B83C53F031917BF72FC8B940)

Subject: RE: Draft North Anna 3 RAIs - Radiation Protection
Sent Date: 10/21/2014 4:12:18 PM
Received Date: 10/21/2014 4:12:56 PM
From: Barry Bryant (Generation - 6)

Created By: barry.bryant@dom.com

Recipients:
"Patel, Chandu" <Chandu.Patel@nrc.gov>
Tracking Status: None
"Joseph Hegner (Generation - 6)" <joseph.hegner@dom.com>
Tracking Status: None
"Regina Borsh (Generation - 6)" <regina.borsh@dom.com>
Tracking Status: None
"Tony Banks (Generation - 6)" <tony.banks@dom.com>
Tracking Status: None
"David B Evans (Generation - 6)" <David.B.Evans@dom.com>
Tracking Status: None
"Buckberg, Perry" <Perry.Buckberg@nrc.gov>
Tracking Status: None

Post Office: OJRE10W802.mbu.ad.dominionnet.com

Files	**Size**	**Date & Time**
MESSAGE	3395	10/21/2014 4:12:56 PM
Draft RAI_7682 10-17-14.docx	30724	
Draft RAI_7690 10-17-14.docx	28867	

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

DRAFT Request for Additional Information

Issue Date: 10/17/2014
Application Title: North Anna, Unit 3 - Docket Number 52-017
Operating Company: Dominion
Docket No. 52-017
Review Section: 12.03-12.04 - Radiation Protection Design Features
Application Section: 12.4.7.1

QUESTIONS:

26264

RG 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.12.3.5, "Dose Assessment," states that, for multiunit plants, the applicant should provide estimated annual doses to construction workers in a new unit construction area, as a result of radiation from onsite radiation sources from the existing operating plant(s).

NA3 COL FSAR Figure 2.1-201 depicts a steam generator storage building located directly north of the ISFSI and closer to the NA3 construction area than the ISFSI.

Provide a description of the measured direct dose rates from this facility and compare these dose rates with the dose rates from the ISFSI. State why the direct dose contribution from this facility is not considered as a direct radiation source to the Unit 3 construction workers.

26265

RG 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.12.3.5, "Dose Assessment," states that, for multiunit plants, the applicant should provide estimated annual doses to construction workers in a new unit construction area, as a result of radiation from onsite radiation sources from the existing operating plant(s). RG 1.206 also states that the applicant should include the bases, models, assumptions, and input data for the doses associated with such construction areas.

NA3 COL FSAR Section 12.4.7.1.3.1 makes reference to the Thermo-luminescent dosimeter (TLD) located at the west protected area fence of Units 1 and 2 which is used for the measurement of the direct dose contribution to the construction worker work force from operating Units 1 and 2. This section also references the TLD located along the ISFSI perimeter fence, which is used for the measurement of the direct dose contribution to the construction worker work force from the ISFSI.

a) Provide a site layout drawing showing the locations of all TLDs located along the protected area fence for Units 1 and 2 as well as the TLD(s) located in the vicinity of the ISFSI.

b) Provide a table showing the quarterly dose measurements at each of these TLD locations for the year spans shown in NA3 COL FSAR Section 12.4.7.1.3.1 (2001 to 2011 for the dose from Units 1 and 2 and 2010 to 2012 for the dose from the ISFSI). Specify the TLD location and dose data used to obtain the dose values used in FSAR

Section 12.4.7.1.3.1 and justify why these values were used. Include any more recent dose measurement data not included in your analysis, if available.

26266

RG 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.12.3.5, "Dose Assessment," states that for multiunit plants, the applicant should provide estimated annual doses to construction workers in a new unit construction area, as a result of radiation from onsite radiation sources from the existing operating plant(s). RG 1.206 also states that the applicant should include the bases, models, assumptions, and input data for the doses associated with such construction areas.

Although NA3 COL FSAR Section 12.4.7.1 provides an analysis of the estimated annual doses to Unit 3 construction workers, this data is not summarized in any tables at the end of NA3 COL FSAR Section 12.4, as is done in the Fermi 3 COL FSAR. Amend NA3 COL FSAR Section 12.4 to add tables containing the information listed below:

- Maximum Annual Dose to a Construction Worker by Source (mrem)
- Collective Annual Construction Worker Dose by Source (person-rem)
- Comparison of Construction Worker Dose to Public Dose Limits Specified in 10 CFR 20.1301

26267

RG 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.12.3.5, "Dose Assessment," states that, for multiunit plants, the applicant should provide estimated annual doses to construction workers in a new unit construction area, as a result of radiation from onsite radiation sources from the existing operating plant(s). RG 1.206 also states that the applicant should include the bases, models, assumptions, and input data for the doses associated with such construction areas.

NA3 COL FSAR Section 12.4.7.1, "Direct Radiation Dose Rates," states that the dose rate at the construction area boundary near the independent spent fuel storage installation (ISFSI) may be estimated by dividing the ISFSI fence dose rate by a distance reduction factor. This distance reduction factor was determined by using a Monte Carlo calculation to assess the dose rate from the ISFSI as a function of distance from the ISFSI. A distance reduction factor of 5.8 was determined by comparing the calculated dose rate of 1.39 mrem/hr at 203 ft from the ISFSI with the calculated dose rate of 0.24 mrem/hr at 500 ft (the distance from the ISFSI to the construction area boundary nearest the ISFSI). By dividing the TLD measured dose rate at the ISFSI fence of 0.176 mrem/hr by this distance reduction factor, the estimated dose rate at the nearest construction area boundary was determined. The same method was used to calculate the estimated dose from the ISFSI at the center of the construction area.

1) Verify the accuracy of determining these dose rates at various distances from the ISFSI using these distance reduction factors with dose rates determined using the one over R squared rule.

2) Using Monte Carlo calculations, as described in this FSAR section, provide distance reduction factors that can be used to determine estimated doses at other areas in the NA3 construction area, such as at the TLD location at the west protected area fence of

Units 1 and 2 (the TLD used for the measurement of the direct dose contribution to the construction worker work force from operating Units 1 and 2).

DRAFT Request for Additional Information

Issue Date: 10/17/2014
Application Title: North Anna, Unit 3 - Docket Number 52-017
Operating Company: Dominion
Docket No. 52-017
Review Section: 11.02 - Liquid Waste Management System
Application Section: 11.2

QUESTION:

For quantification and tracking of radioactive effluents for 10 CFR 20, 10 CFR 50, Appendix I, and 40 CFR 190, include descriptions of radiation measurement instrumentation and related sampling equipment, including redundancy and independence (where applicable); instrumentation range, calibration, and sensitivity; methods for determining alarm/trip setpoints for activating alarms and terminating effluent releases or isolating processes; bases for in-plant effluent dilution; and diversity of components used for normal operations, AOOs, and postulated accidents.

For the liquid waste management system effluent release path in FSAR section 11.2 please provide information for:

1. the process control valves, and any release bypass valves around the radiation monitor or control valves.
2. the radiation monitor interlock functions, operator actions and verifications that will be described by plant procedures.
3. any administrative actions controlling effluent releases.
4. which radiation monitor name, in section 11.5, is involved in providing effluent release control functions.

Please address these items and provide a mark-up for the proposed FSAR changes.