

PMNorthAnna3COLPEmails Resource

From: Patel, Chandu
Sent: Friday, June 03, 2011 3:37 PM
To: 'na3raidommailbox@dom.com'
Cc: Weisman, Robert; NorthAnna3COL Resource; Galvin, Dennis; Nold, David
Subject: Draft RAI 5790, Section 14.3.7, North Anna 3 COLA
Attachments: Draft RAI 5790.doc

Please see attached Draft RAI 5790 for Section 14.3.7 of North Anna 3 COLA. Please let Dennis Galvin know if you need any clarification by COB June 8, 2011. Otherwise, it will be issued as final after June 8, 2011.

Sincerely,
Chandu Patel
Lead Project Manager for North Anna 3 COLA
DNRL, NRO

Hearing Identifier: NorthAnna3_Public_EX
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Request for Additional Information No. 5790 (Draft)

North Anna, Unit 3

Dominion

Docket No. 52-017

SRP Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section: Part 10 ITAAC

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

14.03.07-***

In a letter (Dominion S/N NA3-10-019) to the staff dated November 10, 2010 (ML103160406), the SCOL applicant declined to endorse the RCOL applicant's response to Question 14.03.07-28 of RAI No. 3532 (CP RAI #83). There was no note in the "Endorsement Clarification" to explain this non-endorsement. The staff requests additional information about how the SCOL applicant intends to address the issues raised in Question 14.03.07-28 of RAI No. 3532.

14.03.07-***

Dominion, in letter (ML103160406) of November 10, 2010 endorsed Luminant's responses to seven of eight questions associated with RAI ID # 3532. Subsequently, during the assessment of Luminant's responses and during the writing of the Phase II SER for CP 3&4, the staff initiated three new follow-up RAIs against three of the seven questions already endorsed by Dominion. What follows for Dominion's consideration and response is one of the three new follow-up RAIs to Luminant:

This is a follow-up RAI to RAI No. 3532 (CP RAI #83) Question No. 14.03.07-21(ML093210468) that relates to the essential service water (ESW) pump house ventilation system.

The staff notes that the applicant in its response failed to discuss the issue of instrumentation. However the applicant did commit to amend FSAR Table A.2-2 to include the temperature switches for exhaust fan operation (e.g. VRS-TS-2610C,D, E, F etc.). The staff notes that the temperature controllers of FSAR Figure 9.4-201 (e.g. VRS-TC-2610C,D, E, F etc.) would also have the same classification equipment class 3, seismic category I. The staff requests additional information about the absence of these temperature controllers from Table A.2-2. In addition, the applicant's response failed to address the issue of amending FSAR Table 3.2-201 with this new information.

The staff also notes that the temperature and flow instrumentation attached to the room heaters and exhaust fans would be classified as seismic category II (as a minimum threshold with respect to plant safety). The staff requests additional information about the seismic classification and about the basis for the classification of all instrumentation (i.e. including alarm temperature switches) displayed in Figure 9.4-201 and that the applicant update as necessary FSAR Tables 3.2-201 and A.2-2.

14.03.07-***

Dominion, in letter (ML103160406) of November 10, 2010 endorsed Luminant's responses to seven of eight questions associated with RAI ID # 3532. Subsequently, during the assessment of Luminant's responses and during the writing of the Phase II SER for CP 3&4, the staff initiated three new follow-up RAIs against three of the seven questions already endorsed by Dominion. What follows for Dominion's consideration and response is one of the three new follow-up RAIs to Luminant:

This is a follow-up RAI to RAI No. 3532 (CP RAI #83) Question No. 14.03.07-24 (ML093210468) and relates to Item 4 of ITAAC Table A.2-1 for the ESW pump house ventilation system.

In its response the applicant indicated that ITAAC Item 4 had been revised to be consistent with similar DCD ITAAC concerning proper environmental conditions to support equipment and instrumentation operability during normal operation, abnormal and accident conditions.

The staff reviewed the revised ITAAC Item 4 of Table A.2-1 and concluded that while the ITAAC wording was improved, the "Acceptance Criteria" should be expanded to read "The as-built UHS ESW pump house ventilation system is capable of maintaining area design temperature limits within the respective room during all plant operating conditions, including normal plant operations, abnormal and accident conditions."

The staff requests that the RCOL applicant revise Item 4 Acceptance Criteria similar to the above.

14.03.07-***

Dominion, in letter (ML103160406) of November 10, 2010 endorsed Luminant's responses to seven of eight questions associated with RAI ID # 3532. Subsequently, during the assessment of Luminant's responses and during the writing of the Phase II SER for CP 3&4, the staff initiated three new follow-up RAIs against three of the seven questions already endorsed by Dominion. What follows for Dominion's consideration and response is one of the three new follow-up RAIs to Luminant:

This is a follow-up request for additional information to RAI No. 3532, Question No. 14.03.07-27 (ML093210468).

The applicant's response to Question No. 14.03.07-27 included the words:

"Associated temperature controllers (TCs) located in series with the respective temperature switches as shown on FSAR Figure 9.4-201 are utilized for the initiation of the associated heater(s) or exhaust fan(s).

The safety function of the TSs and associated TCs is for automatic initiation of the fans on high temperature and for automatic initiation of the heaters on low temperature as indicated in Table A.2-2. The temperature indication (i.e. "display") and alarms as shown in FSAR Figure 9.4-201, and the ability to remotely operate the heaters and fans, are not credited for safety-related operation of UHS EWS Pump House Ventilation System

....

The safety related cooling (heating) function is achieved by operation of the safety related fans (unit heaters), and is automatically initiated through the TS and TC instrument loops.

Manual operation is not credited to achieve this safety function.”

(emphasis added with underlining)

The applicant states that the temperature switches and temperature controllers have a safety function in the automatic operation of safety related exhaust fans and room heaters. Contrary to this, the seventh column of the applicant’s proposed revision of Table A.2-2 indicates that the temperature switches (i.e. absent their related temperature controllers) associated with automatic initiation of the system safety function have no “active safety related” function. Please correct the seventh column of the proposed revision of Table A.2-2 to accurately reflect the safety function of the TSs and TCs.

The applicant concluded its response with the statement “The alarms, displays and controls of the UHS EWS Pump House Ventilation System are not credited for the system to perform its safety-related function. The temperature switches in the last two columns (should read ‘rows’) of Table A.2-3 have been deleted since there is no “Yes” answer for safety related alarms, displays or controls in the MCR or RSC.” (emphasis added with underlining)

These statements are in conflict. The temperature switches and related controllers play a fundamental role in the automatic control of the safety related room heaters and exhaust fans. This was indicated as such by the applicant in Answer 2a ([ML093520667](#)) in their response to Question No. 09.04.05-10 of RAI No. 3232 (CP RAI#123). Please explain and correct this inconsistency.

The applicant’s response also included the statement “The fans (unit heaters) operating status is displayed in the MCR. The fan status (RUN indication) indicates proper system operation”. The existence of a run indication (i.e. in the MCR or at the RSC) on a fan or heater merely indicates that the control circuit of the heater or fan has a power supply and that most the likely the heater or fan is performing its component function. The existence of run indication alone provides the operator an incomplete picture about proper operation of a safety related system. Other ventilation system components can fail to operate properly causing the system to fail in performing its required safety function. For example, if the room air inlet dampers fail to close during the winter during concurrent heater operation or fail to open during the summer during concurrent operation of the exhaust fan, the system could fail to perform its required safety function. The operator determines that the safety related system is fulfilling its safety related function by acknowledging the following:

- the absence of an exhaust fan low flow alarm

- the absence of high and low room temperature alarms
- the absence of non-redlined MCR controller temperature displays
- the proper run indication of a exhaust fan or heater

The operators will use these flow and temperature alarms and temperature control displays to determine that the system is fulfilling its intended safety function.

The staff noted in Question No. 14.03.07-27 that an excerpt from SRP Acceptance Criteria #9 of NUREG-0800, SRP 14.3.7 reads “Tier 1 should address and verify at least the minimum inventory of alarms, controls and indications as derived from the Emergency Procedure Guidelines, the requirements of RG 1.97, and probabilistic risk assessment insights.” The staff requested additional information about how the COL applicant used these three sources of guidance to ensure that the listing of alarms, parameters and displays contained in Table A.2-3 fulfilled the intent of this excerpt. The applicant’s response to this part of Question No. 14.03.07-27 was tied to the conflicted response described above with no discussion at all about Emergency Procedure Guidelines, the requirements of RG 1.97, and probabilistic risk assessment insights. The staff requests that the applicant revise their response to Question No. 14.03.07-27 to correct the inconsistencies and conflicts in the response, as noted above; describe how the applicant used Emergency Procedure Guidelines, the requirements of RG 1.97, and probabilistic risk assessment insights to ensure that the listing of alarms, parameters and displays contained in Table A.2-3 meets Acceptance Criteria #9 of NUREG-0800, SRP 14.3.7.