

PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Monday, September 19, 2011 2:46 PM
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Cc: ComanchePeakCOL Resource; Reyes, Ruth; Roy, Tarun
Subject: Comanche Peak RCOL Chapter 19 - RAI Number 230
Attachments: RAI 6001 (RAI 230).docx

The NRC staff has identified that additional information is needed to continue its review of the combined license application. The NRC staff's request for additional information (RAI) is contained in the attachment. Luminant is requested to inform the NRC staff if a conference call is needed.

The response to this RAI is due within 35 calendar days of **September 19, 2011**.

Note: The NRC staff requests that the RAI response include any proposed changes to the FSAR.

thanks,

Stephen Monarque
U. S. Nuclear Regulatory Commission
NRO/DNRL/NMIP
301-415-1544

Hearing Identifier: ComanchePeak_COL_Public
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Options

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Request for Additional Information (RAI) No. 6001, COLA Revision 1

RAI Letter Number 230

9/19/2011

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035

SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: FSAR Ch 19

QUESTIONS for PRA and Severe Accidents Branch (SPRA)

19-16

The staff reviewed the methodology proposed by Luminant Generation Company LLC to address how the Risk-Managed Technical Specifications (RMTS) and Surveillance Frequency Control Program (SFCP) will be implemented in the TS of Comanche Peak 3 and 4. This methodology (Docket Numbers 52-034 and 52-035) is dated June 30, 2011. During its review, the staff has identified several areas in the June 30, 2011 submittal, Nuclear Energy Institute (NEI) 06-09, Revision 0 "Risk-Managed Technical Specifications Guidelines," and NEI 04-10, Revision 1, "Risk-Informed method for Control of Surveillance Frequencies," where clarification or additional information is necessary to be included in the Technical Specifications Methodology, submitted June 30, 2011, in order to complete the staff's review.

1. On pages 2 and 4, of the June 30, 2011 submittal under "General," a statement taken from SRM-SECY-10-0121 is quoted. The staff believes that this statement should be removed since it does not constitute a change in existing guidance, which is the sole purpose of the Comanche Peak Units 3 and 4 Methodology for RMTS and SFCP. However, the Commission in SRM-SECY-10-0121 requested further analysis and review to verify that the use of current guidance will not decrease significantly the enhanced safety of new reactor designs. This effort is ongoing and it would be premature to make assumptions about the results of the review or Commission direction at this time. For the same reason, Section 4.0 "Risk Metrics" of the proposed Methodology, should be deleted. This section could be added at a later time if the additional analysis and review, that was requested by the Commission in SRM-SECY-10-0121 concludes that changes in "risk metrics" are needed for new reactors. Also, the sixth bullet in Sections 3.1 and 3.2 should be removed.
2. On page 2-6 of NEI 06-09 Rev 0, Section 2.3.1 item 7, the bullet before the last needs to be modified to address 10 CFR 50.71(h1), (h2) and (h3) which require that the PRA model of a new reactor must cover those initiating events and modes of operation for which NRC-endorsed consensus standards on PRA have gone into effect one year before or earlier. Therefore, this bullet needs to be

modified to state that “the impact of all initiating events (e.g., internal fire and floods and other external events) and modes of operation (e.g., low power and shutdown operation, if applicable) must be addressed in accordance with 10 CFR 50.71(h1), (h2) and (h3) and included in the RMAT and RICT calculation.” Similar changes should also be made in NEI 04-10 to ensure that the detailed PRA available at the time the plant transitions into operation is used to calculate potential surveillance testing interval increases.

3. On page 2-7 of NEI 06-09 Rev 0, Section 2.3.1 items 9 and 10 need to be modified to ensure the success criteria for multiple-train (more than two) systems. For example, if a system has four trains but two trains are required for success, the unavailability of three trains is an LCO 3.0.3 condition and the application of an RICT should not be allowed. This correction to existing guidance needs to be made in all NEI 06-09 Rev 0 references (e.g., Item 3 of Section 3.2.2).
4. The staff believes that item 2 in Section 2.3.2 “Documentation” of NEI 06-09 Rev 0 (page 2-9) needs to be modified to specifically require documentation of the “process for conducting and using the results of risk assessment in station decision-making” regarding the treatment of uncertainty associated with the lack of operating experience and lack of adequate reliability data for innovative design features, especially during the initial stage of the plant's operation. Item 6 in Section 2.3.2 of NEI 06-09 Rev 0 should require a list of actions, if any, that were taken to address the above mentioned uncertainty. Similar documentation should be required in Step 15 of NEI-04-10.
5. The staff believes that item 2.2 in Section 2.3.3 “Training” of NEI 06-09 Rev 0 (page 2-10) needs to be modified to specifically require training regarding the treatment of uncertainty associated with the lack of operating experience and lack of adequate reliability data for innovative design features, especially during the initial stage of the plant's operation.
6. On page 2-10 of NEI 06-09 Rev 0, Section 2.3.4 “PRA Technical Adequacy” item 3 needs to be modified to address the requirements of 10 CFR 50.71(h1), (h2) and (h3), such as that the PRA must cover those initiating events and modes of operation for which NRC-endorsed consensus standards on PRA exist one year prior to the initial loading of fuel. Therefore, the sentence regarding the use of “alternative” methods needs to be modified in accordance with 10 CFR 50.71(h1), (h2) and (h3) requirements. Conservative or bounding assumptions may be used in RMTS calculations as long as they are used in conjunction with PRA models meeting consensus standards if so desired by the licensee for the sake of brevity or simplicity. This correction to existing guidance must be made in all NEI 06-09 Rev 0 references (e.g., first paragraph on page 3-6, first paragraph on page 4-1 under “PRA Attributes” and Section 3.3.5 “External

Events Consideration”) as well as to NEI-04-10 Rev 1 references (e.g., Step 10 on page 13).

7. The proposed change of Item 2 under “PRA Technical Adequacy” to the June 30, 2011 submittal states that “The PRA shall be reviewed for the supporting requirements important to RMTS of NRC-endorsed consensus standards on PRA” The staff believes that the PRA shall be reviewed for all supporting requirements and, therefore, the words “important to RMTS” needs to be deleted.

8. The staff believes that the sentence proposed to be inserted in Item 10 under 2.3.4 “Technical Adequacy” and in Item 1 under 3.3.4 “Uncertainty Consideration in a RMTS Program” to the June 30, 2011 submittal needs to be modified as follows:

“Key sources of uncertainty and key assumptions of the US-APWR PRA, documented in Table 19.1-38 of the US-APWR DCD Chapter 19 or in Chapter 19 of the Comanche Peak Units 3&4 FSAR, should be reviewed (together with any additional potential sources of uncertainty and key assumptions identified by the COL licensee or the peer review process for the detailed as-built, as-operated PRA) to characterize and understand their impact on the RMTS-related decision making. Uncertainty associated with the initial lack of operating experience and the lack of adequate reliability data for some innovative equipment designs (e.g., advanced accumulators and digital I&C) should be identified and characterized by sensitivity analyses and addressed by using appropriately conservative reliability values in RMTS calculations.” This correction to existing guidance needs to be made in all NEI 06-09 Rev 0 references (e.g., Section 3.3.4 “Uncertainty consideration in a RMTS Program.”) as well as to NEI-04-10 references to the consideration and treatment of uncertainty (e.g., Step 14 “Perform Sensitivity Studies”).

9. On Section 3.3.6 of NEI 06-09 Rev 0 “Common Cause Failure Consideration” it is stated:

“.....the treatment of common cause failures in the quantitative CRM Tools may be performed by considering only the removal of the planned equipment and not adjusting common cause failure terms.” This statement must be changed to clarify the success criteria for multiple-train (more than two) systems present in the US-APWR design. For example, for a system of four independent trains (A, B, C, D) where two trains are required for success, the common cause failure terms are ABCD, ABC, ABD, ACD, BCD. However, when train D is out for maintenance, the common cause failure terms are ABCD, ABC, ABD, ACD, BCD, AB, AC, BC (i.e., the terms AB, AC, and BC must be added). Please discuss.

10. The staff identified the following areas of the June 30, 2011 submittal where editorial changes are needed:
- Page 1, Section 1.0, Introduction, add a sentence to the first paragraph that states this subject methodology is to be explicitly referenced in CP TS 5.5.18 and 5.5.19.
 - Page 1, Section 1.0, Introduction, change the last sentence of the third paragraph to state that, “Changes to the TS after COL issuance will be performed in accordance with the 10 CFR 50.90 process.”
 - Page 2, Section 2.0, Incorporation of NEI Documents, 4th line after “modifications,” add the phrase, “, contained herein, ...” so that it reads, “... with the modifications, **contained herein**, needed to make them fully applicable to these plants.”
 - Page 3, Section 2.1, on NEI 06-09, Revision 0, under 2.3.4, PRA Technical Adequacy, in the last sentence under item 10, the word “should” needs to be changed to “shall be”.
 - Page 3, Section 2.1, on NEI 06-09, Revision 0, under 3.3.4, Uncertainty Consideration in a RMTS Program, in the last sentence under item 1, the word “should” needs to be changed to “shall be”.