

PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Thursday, May 20, 2010 1:13 PM
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Cc: ComanchePeakCOL Resource; Reyes, Ruth
Subject: Comanche Peak RCOL Chapter 19 - RAI Number 166
Attachments: RAI 4638 (RAI 166).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 May 20, 2010.

Note: If changes are needed to the safety analysis report, the NRC staff requests that the RAI response include the proposed changes.

thanks,

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

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Request for Additional Information (RAI) No. 4638 COLA Revision 1

RAI Number 166

5/20/2010

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: 19.1

QUESTIONS for PRA and Severe Accidents Branch (SPRA)

19-11

The staff requests the following additional information or clarification related to Luminant's response to RAI Number 28 (3214), Question 19-5, dated September 24, 2009:

- (1) Luminant, in its response dated September 24, 2009, submitted a revision to Table 19.1-206 of the Combined License (COL) FSAR. The last three site-specific key insights and assumptions listed in Table 19.1-206 of the CPNPP Units 3 and 4 COL FSAR (i.e., overfill protection, backup actions to avoid excessive room heat up in the event of loss of essential service water (ESW) room ventilation, and plant high confidence of low probability of failure (HCLPF) values of structure, system, and components (SSCs)) require action by the COL licensee. As such, the reference to these specific COL licensee actions is requested to be shown in the disposition column of Table 19.1-206.
- (2) The following statement is made in Part 3 of the response and in the last item of Table 19.1-206: "Plant-specific SSCs that potentially impact plant safety are seismically designed and will not impact the plant high confidence of low probability of failure (HCLPF)." This statement does not address the staff's question regarding any changes to the seismic margins analysis results, assumptions and insights (documented in the referenced US-APWR DCD) that result from site specific design changes. The PRA-based seismic margins analysis has additional objectives beyond estimating the plant's HCLPF value, such as the identification of dominant seismic sequences and associated major contributors (see Section 19.1.5.1.2 of the US-APWR DCD).

19-12

The staff requests the following additional information or clarification related to Luminant's response to RAI Number 28 (3214), Question 19-6, dated September 24, 2009:

- (1) Assumptions and important design features regarding the plant-specific essential service water system (ESWS) and ultimate heat sink (UHS) are listed in Section 19.1.4.1.2 (page 19.1-3) and Table 19.1-206 of Revision 1 of the CPNPP Unit 3 and 4 COL FSAR and Luminant's response to the RAI dated September 24, 2009. One assumption states: "Should the plant trip, the basins can be effective in removing decay heat more than 24 hours." This assumption needs to be clarified to state that two basins are effective in removing decay heat for more than 24 hours without replenishment or transferring water from another basin.
- (2) It is stated in item (3) of the response: "The PRA considers that the assumption related to the effectivity of basins for the 24 hours can also be applied under the maximum ambient temperature of CPNPP site described in FSAR Chapter 2." Please provide the basis for this statement. Is the design basis calculation based on the maximum ambient temperature for the CPNPP site described in FSAR Chapter 2?

19-13

The staff requests the following additional information or clarification related to Luminant's response to RAI Number 28 (3214), Question 19-7, dated September 24, 2009:

- (1) It is stated in the response that a qualitative screening of external events has been performed, in accordance with the five qualitative criteria provided in ANSI/ANS-58.21-2007 supporting technical requirement EXT-B1, and a quantitative screening of those external events that could not be eliminated by the qualitative screening was performed. As stated in the staff's follow-up RAI related to the response to RAI Question 19-2, the staff believes that the underlying rationale of the ANSI/ANS-58.21-2007 qualitative criteria (which apply mainly to operating reactors) needs to be examined when these criteria are applied to new reactor designs. The five qualitative criteria provided in ANSI/ANS-58.21-2007 should be complemented by appropriate qualitative or quantitative arguments to show that each eliminated external event is indeed an insignificant contributor to the total CDF of the new reactor. Such qualitative or quantitative arguments can be discussed in Table 19.1-205 of Revision 1 of the COL FSAR, where the use of the qualitative screening criteria to eliminate external events from further analysis is documented.
- (2) It is stated that Table 19.7-1, of Luminant's response, dated September 24, 2009, does not involve external hazards, such as seismic, "because [they] are already described in DCD chapter 19.1.5 using seismic margin method or PRA method." However, the analysis of the seismic events described in DCD chapter 19.1.5 does not address seismically-induced accidents beyond the plant itself, such as flooding due to failure of upstream dams or release of hazardous materials due to the collapse of nearby industrial, transportation and military facilities. Please discuss.

- (3) For hurricanes it is stated: “The Probable Maximum Hurricane (PMH) for the CPNPP site, the PMH sustained (10-minute average) wind speed at 30 ft above ground is 81 mph.” Based on this statement hurricanes are screened out from the quantitative analysis since all structures are designed to withstand winds up to 90 mph. The staff believes that this event cannot be screened out without considering the frequency of hurricanes that reach the CPNPP site with wind speed above 90 mph. For example, a hurricane event that strikes the CPNPP site with wind speed above 90 mph once every 100 years is more risk significant than tornadoes of enhanced F-scale intensity F1 since it causes the same plant failures with a significantly higher frequency.
- (4) For extreme winds it is stated: “The 3-second gust wind speed for a 100-yr return period [at the CPNPP site] is 96 mph..... This event is not significant impact than hurricanes and tornadoes.” Please explain the reason why this event is not more significant than tornadoes of enhanced F-scale intensity F1 given that it can cause the same plant failures (plant switchyard, fire protection system and non-essential chilled water system) with a significantly higher frequency (i.e., once every 100 years vs. 1.4×10^{-4} per year).