PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Friday, October 07, 2011 10:20 AM
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Cc: ComanchePeakCOL Resource; Reyes, Ruth
Subject: Comanche Peak RCOL Chapter 19 - RAI Number 232
Attachments: RAI 6045 (RAI 232).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 **October 7, 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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Request for Additional Information (RAI) No. 6045 COLA, Revision 2

RAI Letter Number 232

10/7/2011

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)

19-17

In RAI Letter Number 165 (4619) Question 19-10, Item (2), the staff requested additional information to justify or clarify the use of the five qualitative criteria provided in ANSI/ANS-58.21-2007 for an initial screening of external events. The staff stated that the ANSI/ANS-58.21-2007 qualitative criteria, which apply mainly to operating reactors that are usually associated with higher risk than new reactors, should be complemented by appropriate qualitative or quantitative arguments, as necessary, to show that each external event screened out from analysis is indeed an insignificant risk contributor to the total risk of Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4. In its response dated June 24, 2010, Luminant states that "External events preliminary screening criteria as defined in ANSI/ANS-58.21-2007 are universal screening criteria without regard for plant types" and "Additionally, the qualitative screening criteria noted above are applicable for advanced plants because those qualitative criteria assure no hazardous potential exist or the effect of hazards have lower damage potential than enhanced design basis." These two statements are not always true because they assume the presence of an "enhanced design basis" for new reactors which results in risk from design basis events that is an insignificant contributor to the total plant risk. The staff believes that this is an assumption that must be supported by supplemental information from Chapter 2 of the FSAR (e.g., information such as that used for external floods in Table 19.1-205). Consistent with the revised Regulatory Guide 1.200, it must be reasonably shown that the qualitative screening criteria are consistent with the quantitative screening criterion assumed in the CPNPP Units 3 and &4 FSAR (i.e., event frequency is $1x10^{-7}$/year or less) in terms of the magnitude of risk allowed to be screened out.

In its response to RAI Letter Number 166 (4638) Question 19-13, Luminant states that "…the basis of qualitative or quantitative screening for each external event has been supplemented in the FSAR Table 19.1-205." The staff's review of Table 19.1-205 identified the need for additional information, as discussed below.

Please address and include in the next revision of the FSAR, as applicable, the following information or clarification:

(a) A more clear definition of the first two qualitative screening criteria, such as “The event is of equal or lesser damage potential than the events for which the plant has been designed” for criterion #1, and “The event has a significantly lower frequency than another event and cannot result in worse consequences than this other event” for criterion #2.

(b) Link the discussion on each screened out external event (e.g., “External Flooding” on page 19.1-9 in Revision 2 of the CPNPP Units 3&4) to the specific arguments used in Table 19.1-205 for screening out these events. Such arguments must provide reasonable assurance that the use of the preliminary screening criteria of ASME/ANS RA-Sa-2009 do not screen out events that could be significant contributors to the plant overall risk.

(c) Wherever the preliminary screening criteria are used in Table 19.1-205, all needed information for the comparison of the event characteristics to the screening criteria must be clearly stated (e.g., the applicable design basis event must be described when criterion #1 is used) together with any arguments (qualitative or quantitative) that support the assumption that the combined effect of frequency and consequence of the event would result in an insignificant contribution to the total risk of the plant. Also please list separately, in the corresponding column, the criteria used for each described event (e.g., explosion in transportation routes versus on-site explosion hazards).

(d) Table 19.1-205 (on page 19.1-52) has two entries for “Toxic Chemicals.” It appears that the second entry is a continuation of the first. Please clarify.

(e) External fires are discussed on Table 19.1-205 (page 19.1-54 and 19.1-55). The preliminary screening criterion #1 is referenced without any definition of the design basis event used. Also, criterion #3 is referenced without any clear definition of the distance between the assumed fire sources and the plant site (clarification is needed regarding terms used in the description of distance, such as “protected area distance,” “security area,” “security zone,” “security isolation,” “setback distance” and “combined distance”) and why it is assumed that fire propagation beyond this distance is very unlikely. It is stated that “a wildfire in the vicinity of the site will not continue to propagate onto the Protected Area” without stating the basis for such a statement. Wild fires are known to travel big distances and in the presence of high winds to jump over cleared areas. Please discuss.

(f) Explain the applicability of preliminary screening criterion #2 for external floods as shown in Table 19.1-205.

(g) Include additional “site-specific key assumptions,” listed in Table 19.1-205 of the FSAR and in responses to staff RAIs (e.g., regarding external flooding), in Table 19.1-206.

19-18

The staff's review of Revision 2 of the CPNPP Units 3 and 4 FSAR Chapter 19 identified several areas that lack clarity, such as the following:

(1) On page 19.1-3, Tables 19.1-2 and 19.1-23 are referenced but no tables are included in the report. Please clarify.

(2) Table 19.1-204, was included which lists important basic events related to the site-specific design. The FSAR must also list, or clearly describe, important basic events listed in the referenced US-APWR DCD that are not part of the site-specific design.

(3) Table 19.1-119R "Key Insights and Assumptions" is not mentioned anywhere in the FSAR. Since the site-specific "Key Insights and Assumptions" are summarized in Table 19.1-206, please clarify how Table 19.1-119R compares to the corresponding US-APWR DCD table.

(4) Clarify the following sentence on page 19.1-4 in Section 19.1.5: "At first, qualitative screenings are performed because they are easy to obtain lower risk from advanced reactors design features or site characteristics."

(5) Table 19.1-205 (on page 19.1-48) describes the design basis event as "…materials with TNT equivalency of 2.24 …" Please clarify.