

PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Thursday, May 05, 2011 5:16 PM
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Cc: ComanchePeakCOL Resource; Reyes, Ruth
Subject: Comanche Peak RCOL Chapter 19 - RAI Number 218
Attachments: RAI 5731 (RAI 218).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 5, 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. 5731, COLA Revision 1

RAI Letter Number 218

5/5/2011

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: 19.1 (PRA)

QUESTIONS for PRA and Severe Accidents Branch (SPRA)

19-15

In RAI 3287 (RAI Letter Number 26), Question 3, the NRC staff requested that the applicant provides a roadmap with specific steps and supporting information, as necessary, that addresses (1) potential improvements of the US-APWR design certification (DC) PRA models, (2) inclusion of site-specific and detailed design models and as-built information, (3) PRA capability that meets Regulatory Guide 1.200 for all ASME supporting requirements, except for the ones that need plant-specific operational experience, as well as application-specific guidance, and (4) modeling uncertainties and strategies for addressing them (e.g., through bounding assumptions or specific compensatory actions) to be considered in conjunction with the specific risk-informed programs. In its response dated September 22, 2009, Luminant provided a timeline of high-level actions that will be taken by the COL licensee to ensure that a plant-specific PRA model, which meets all applicable guidance requirements, will be available before the plant goes in operation. Even though the provided timeline and associated actions in the response to RAI 3287 Question 3 are reasonable, the staff has identified the need for better definition of the issues and for more detailed description of the timeline actions to provide reasonable assurance at the COL stage that all applicable guidance requirements will be met before the plant transitions to operation.

During a public meeting, Luminant and the staff agreed to address these issues by the development of a "methodology" which will be included in the TS Administrative Controls and which will provide reasonable assurance, at the time of COL license issuance, that all applicable guidance requirements will be met before the plant transitions to operation. Such reasonable assurance would be attained by insights obtained through analysis and interpretation of results of specific examples. Appropriately selected examples of Risk Managed Technical Specifications (RMTS) Initiative 4b and Surveillance Frequency Control Program (SFCP) Initiative 5b applications would provide valuable insights, such as regarding the type and impact of uncertainties involved, as well as their treatment, in the risk-informed decision-making process. These insights should be used to focus, improve and strengthen the Comanche Peak Nuclear Power Plant (CPNPP)-specific "methodology" document to attain reasonable assurance that all applicable guidance requirements will be met.

Regarding RMTS Initiative 4b, the staff has identified the following plant configuration scenarios whose demonstrative implementation will provide valuable insights which will

help determine whether the RMTS “methodology” being developed provides reasonable assurance that all applicable guidance requirements will be met:

Case 1

The following equipment is out for planned maintenance: (1) One essential service water (ESW) / component cooling water (CCW) train (assume train “B” (in standby)); (2) One Class 1E gas turbine generator (GTG) (assume GTG “B”); (3) One alternate alternating current (AAC) GTG (assume AAC GTG “B”); and (4) Diesel-driven fire suppression pump.

While this equipment is out, as allowed by TS with no limiting condition for operation (LCO) in effect, a second ESW/CCW train fails (assume train “D” in standby) and Condition A of LCO 3.7.7 and LCO 3.7.8 is entered. The completion time (CT) is 72 hours. Assume that none of the two ESW/CCW trains can be restored within 72 hours and the requirements of Specification 5.5.18 (RMTS Initiative 4b) are applied and a risk-informed CT is calculated.

Case 2

The following equipment is out for planned maintenance: (1) One Class 1E GTG (assume GTG “A”); (2) One AAC GTG (assume AAC GTG “A”); (3) One safety injection system (SIS) pump (assume pump “A”); (4) One containment spray pump (assume pump “A”); and (5) One turbine- driven (T-D) emergency feedwater (EFW) pump (assume pump “A” and train cross-tie per LCO 3.7.5 is met).

While this equipment is out, as allowed by TS with no LCO in effect, a second Class 1E GTG (assume train “B”) is found inoperable and Condition B of LCO 3.8.1 is entered. The completion time (CT) is 72 hours. Assume that none of the two inoperable Class 1E GTGs can be restored within 72 hours and the requirements of Specification 5.5.18 (RMTS Initiative 4b) are applied and a risk-informed CT is calculated.

Case 3

The following equipment is out for planned maintenance (preventive and/or corrective): (1) One train (assume train “A”) of each standby safety system; (2) One AAC GTG (assume AAC GTG “A”); (3) DAS EFW system Actuation and emergency core cooling system (ECCS) Actuation functions (Condition A of LCO 3.3.6 requires DAS to be restored within 30 days); and (4) One T-D EFW pump (assume pump “A” and train cross-tie per LCO 3.7.5 is met).

While this equipment is out, as allowed by TS with no LCO in effect (except for DAS which has a CT of 30 days), a second safety injection system (SIS) pump (assume pump “B”) is found inoperable (assume one hour after LCO 3.3.6 went into effect) and Condition A of LCO 3.5.2 is entered. The completion time (CT) for LCO 3.5.2 is 72 hours.

Assume that none of the two inoperable SIS pumps can be restored within 72 hours and the requirements of Specification 5.5.18 (RMTS Initiative 4b) are applied and a risk-informed CT is calculated.

For each of the three cases please use the currently available PRA model to calculate risk-informed completion times (RICTs) and submit the results and associated discussion to NRC for the staff’s review. Please include a separate discussion for each

case which includes the following: (1) major assumptions used in calculations and regarding risk management actions; (2) the calculated core damage frequency (CDF) and large release frequency (LRF) (or large early release frequency (LERF) increase versus time; (3) the calculated incremental core damage probability (ICDP) and ILERP versus time; (4) list of significant contributing cutsets to the increased risk (at least for CDF) with adjusted probabilities reflecting equipment outages (e.g., impact of equipment outages on baseline PRA common-cause failure probabilities and initiating event frequencies); (5) treatment of uncertainties in decision making.

In addition, please discuss additional plant configurations, or configuration controls associated with existing RMTS guidance or other programs, that Luminant believes may provide useful information in developing the RMTS "methodology," if applicable.

Regarding SFCP Initiative 5b, the staff finds that a parametric sensitivity study where every surveillance testing interval shorter than 92 days for risk significant equipment in the SFCP is increased by several factors (e.g., 2, 5 and 10 times) would provide valuable insights and help the staff reach conclusions regarding the adequacy of the SFCP "methodology" being developed. Please perform a parametric sensitivity study as described above and use a few representative examples to illustrate how the guidance in NEI-04-10 will be implemented and how PRA uncertainties will be addressed for these specific cases in the decision-making process.