

## PMComanchePeakPEm Resource

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**From:** Monarque, Stephen  
**Sent:** Monday, September 07, 2009 3:21 PM  
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**Cc:** Otto, Ngola; ComanchePeakCOL Resource  
**Subject:** Comanche Peak RCOL Section 11.2 - RAI # 49  
**Attachments:** RAI 3398 (RAI 49).doc

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.

The response to this RAI is due within 42 calendar days of September 7, 2009.

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

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**Hearing Identifier:** ComanchePeak\_COL\_Public  
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Request for Additional Information (RAI) No. 3398

RAI # 49

9/7/2009

Comanche Peak Units 3 and 4  
Luminant Generation Company, LLC.  
Docket No. 52-034 and 52-035  
SRP Section: 11.02 - Liquid Waste Management System  
Application Section: 11.2

QUESTIONS for Health Physics Branch (CHPB)

11.02-5

Tables 11.2-10R and 11.2-11R of the combined license application (COLA), Part 2, FSAR (Rev 0) present liquid effluent release concentrations calculated from a modified version of the PWR-GALE code with input parameter values from Table 11.2-9 shown in US-APWR design control document (DCD), Tier 2, FSAR (Rev 1) and the site-specific application of handling contaminated laundry to off-site services. Because the PWR-GALE code was modified (Refer to US-APWR DCD RAI 402-3028), the NRC staff is unable to independently confirm Luminant's calculated effluent release concentrations and resulting doses for compliance with 10 CFR 20, Appendix B, Table 2; 10 CFR 50, Appendix I; 10 CFR 20.1302; and 10 CFR 50, Appendix A, General Design Criterion (GDC) 60. Please provide a full description and supporting rationale for all modifications made to the code subroutines and submit the PWR-GALE input/output files for the site-specific application.

11.02-6

Section 11.2.1.6 of the COLA, Part 2, FSAR (Rev 0) describes use of mobile or temporary equipment for processing liquid waste. Figure 12.3-1 (Sheet 17 of 34) in the US-APWR DCD, Tier 2, FSAR (Rev 1) depicts the location of this equipment at an elevation of 3'-7" which is adjacent to the truck bay access to outside areas. The NRC staff review of COLA, FSAR Section 11.2.1.6 indicates there is no description of design features to prevent leakage from this equipment through the truck bay entrance door or contamination of below grade elevations via nearby stairways for compliance with 10 CFR 20.1406. Please address the following items.

1. Describe the design features and related inspection and maintenance requirements to prevent or mitigate contamination of the facility and environment from use of mobile or temporary structures systems and components that may contain radioactive material.
2. Describe and justify the specific approaches employed for the prevention of and monitoring for contamination of the facility and environment from use of these systems.

Revise the COLA to include this information and provide the NRC staff with a markup FSAR in your response.

#### 11.02-7

The NRC staff's review of COLA, Part 2, FSAR (Rev 0), Section 11.2.2 indicates the information needed to satisfy CP COL 11.2(2) for compliance with 10 CFR 50.34a was not provided. This section states, "The shape of the flow orifices and other technical details will be developed in the detail design phase." However, COL 11.2(2) in US-APWR DCD, Tier 2, FSAR (Rev 1), Section 11.2.4 states, "Site-specific information of the LWMS [liquid waste management system], e.g., radioactive release points, effluent temperature, shape of flow orifices, etc., is provided in the COLA." Please provide the design information to satisfy CP COL 11.2(2). Revise the COLA to include this information and provide a markup of the FSAR in your response.

#### 11.02-8

The NRC staff's review of COLA, Part 2, FSAR (Rev 0), Section 11.2 indicates additional information is needed on the design of the evaporation pond system for compliance with 10 CFR 20.1302; 10 CFR 20.1406; 10 CFR 50.34a; 10 CFR 50, Appendix A, GDC 60, 61, and 64; 10 CFR 52.80(a); and 40 CFR 264. Please address the following items.

1. Provide the evaporation pond system design information in Section 11.2. Specifically,
  - a. Identify the applicable Federal (Titles 10 and 40 CFRs, etc.) and State (Texas) regulations and describe how the design complies with these requirements.
  - b. Identify the applicable NRC regulatory guidance (RG) (such as RG 1.143, 'Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants,' Revision 2 (November 2001), RG 4.21, 'Minimization of Contamination and Radioactive Waste Generation: Life-Cycle Planning,' (June 2008) etc.) and industry standards (such as ANSI, etc.) and describe how the design conforms to these guidance documents and standards for compliance with the regulations in 1.a., or justify their exclusion.
  - c. Identify other design information (such as tritium concentration limit, structural, capacity, sizing, over/under flow prevention, contributing sources for dilution water, components, effluent and/or process radiation monitoring, representative sampling, etc.) and describe their bases.
  - d. Identify and describe the design features such as provisions for leakage prevention and/or detection that will be used to minimize contamination of the facility and environment from the origin to the ultimate discharge point into the Squaw Creek Reservoir.
  - e. Identify and describe the associated programs and procedures that will be used to comply with State and Federal regulations and conform to NRC regulatory guidance and industry standards.
  - f. Identify and describe the ITAAC that will be used to ensure acceptable construction and operation of the evaporation pond system, or justify its exclusion.

2. Section 11.2.3.1 states, "Once it is confirmed that the treated effluent meets discharge requirements, the effluent is released into the Squaw Creek Reservoir via the CPNPP [Comanche Peak Nuclear Power Plant] Units 1 and 2 circulating water return line." Please identify the programs and procedures that will be used to ensure treated effluents from the evaporation pond meet discharge requirements prior to release into the Squaw Creek Reservoir via CPNPP, Units 1 and 2.
3. Section 11.2.3.1 refers to an analysis that considers site environmental data (e.g., local rainfall, evaporation, etc.) performed to evaluate how the evaporation pond maintains the tritium concentration of 30,000 pCi/L offsite dose calculation manual (ODCM) limit since this limit could be exceeded with four CPNPP units operating at full power. Please submit this analysis and supporting technical basis documents including references that demonstrates the tritium concentration limit in the ODCM for the Squaw Creek Reservoir is not exceeded.
4. Section 11.2.3.1 states, "The exact locations of the connections into the circulating water discharge header is determined in the detail design phase with consideration of the impact of sharing structure, system, and components (SSCs) among the nuclear units." Provide this design information and describe how adequate mixing and sharing of SSCs will be ensured on the two unspecified connection locations for the CPNPP Units 3 and 4 discharge header and evaporation pond discharge line to the circulating water return line for CPNPP Units 1 and 2 into the Squaw Creek Reservoir.
5. Discuss the scenario and resulting calculated doses (or bounding analysis evaluation) for a postulated liquid effluent release from the evaporation pond into the Squaw Creek Reservoir due to normal routine operations including anticipated operational occurrences.

Revise the COLA to include this information and provide a markup in your response.

#### 11.02-9

Table 11.2-14R of the COLA, Part 2, FSAR (Rev 0) presents site-specific LADTAP II code input parameter values for the site-specific application to calculate doses from liquid effluents for compliance with 10 CFR 50 Appendix I and 40 CFR 190. The NRC staff's review of Section 11.2 indicates additional information is needed for the site-specific parameter values and their basis to support Luminant's conclusions. Because LADTAP II applies effluent release concentrations calculated from a modified version of the PWR-GALE code (DCD RAI 402-3028), the NRC staff is unable to independently confirm Luminant's dose calculations for a reasonable assurance of safety conclusion. Please address the following items.

1. Submit the LADTAP II code input/output files for the site-specific application.
2. Submit the calculation and supporting technical basis documents including references for selecting the site-specific parameter values used in the LADTAP II code calculations.

3. Table 11.2-14R identifies “Cow” as the animal considered in the irrigated foods - milk pathway dose for liquid effluent releases, whereas, Table 11.3-8R identifies both “Cow” and Goat” as animals considered in the milk pathway dose calculations for gaseous effluent releases. Please address this inconsistency.

Revise the COLA to include this information and provide a markup in your response.

#### 11.02-10

Figure 11.2-201 of the COLA, Part 2, FSAR (Rev 0) depicts some SSCs such as the evaporation pond, CPNPP Units 3 and 4 discharge headers, piping, instrumentation, discharge line connections to CPNPP Units 1 and 2 circulating water lines, and discharge line into the Squaw Creek Reservoir, etc. The NRC staff's review of this figure indicates that additional information is needed in regards to the description of design equipment associated with the evaporation pond for compliance with 10 CFR 50.34a, and monitoring of effluent discharge paths and plant environs for compliance with 10 CFR 50, Appendix A, GDC 64. As such, please address the following items.

1. Clarify the dotted lines representing both proposed (evaporation pond) and existing SSCs (piping on CPNPP Units 1 and 2 circulating water lines) in Figure 11.2-201.
2. Section 11.2.3.1 states, “The pond design includes a discharge line and a transfer pump.” However, this pump is not identified in Figure 11.2-201. Identify the transfer pump in Figure 11.2-201.
3. Identify the radiation monitoring and sampling locations from the evaporation pond origin to the ultimate discharge point into the Squaw Creek Reservoir in Figure 11.2-201.

Revise the COLA to include this information and provide a markup in your response.