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CP-201101523  
Log # TXNB-11074

Ref. # 10 CFR 52

November 14, 2011

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555  
ATTN: David B. Matthews, Director  
Division of New Reactor Licensing

**SUBJECT:** COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4  
DOCKET NUMBERS 52-034 AND 52-035  
SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
NO. 3401 (SECTION 11.4)

Dear Sir:

As a result of an October 5, 2011, call with the NRC staff, Luminant Generation Company LLC (Luminant) submits herein supplemental information for the response to RAI No. 3401 (CP RAI #39) for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. The supplemental information addresses the design of the radwaste interim storage facility.

Should you have any questions regarding the supplemental information, please contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com) or me.

There are no commitments in this letter.

I state under penalty of perjury that the foregoing is true and correct.

Executed on November 14, 2011.

Sincerely,

Luminant Generation Company LLC

A handwritten signature in black ink that reads "Donald R. Woodlan for".

Rafael Flores

Attachment: Supplemental Response to Request for Additional Information No. 3401 (CP RAI #39)

DO9D  
NRD

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**SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 3401 (CP RAI #39)**

**SRP SECTION: 11.04 - Solid Waste Management System**

**QUESTIONS for Health Physics Branch (CHPB)**

**DATE OF RAI ISSUE: 9/4/2009**

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**QUESTION NO.: 11.04-4**

Section 11.4.2.3 in the COLA, Part 2, FSAR (Rev 0) identifies a common radioactive waste interim storage facility between the proposed Comanche Peak Nuclear Power Plant (CPNPP), Units 3 and 4 that will be used to store classes A, B, and C wastes from all four CPNPP units for up to 10 years to satisfy COL 11.4(1). COL 11.4(1) in the US-APWR design certification document (DCD), Tier 2, FSAR (Rev 1) instructs the COL Applicant to identify plant-specific needs for onsite low-level radioactive waste storage and to provide a discussion of this onsite storage if additional storage capacity is desired beyond that provided in the DCD, Tier 2, FSAR, Section 11.4. The NRC staff's review of Section 11.4 in the COLA, Part 2, FSAR (Rev 0) indicates insufficient information is provided on the design of the interim radioactive waste storage facility for compliance with 10 CFR Parts 20, 50, 61, 71, 40 CFR 190, and 49 CFR 171-180. Please address the following items.

1. Provide the interim radioactive waste storage facility design information in Section 11.4. Specifically,
  - a. Identify the applicable Federal (Titles 10, 40, and 49 CFRs, etc.) regulations and describe how the design complies with these requirements.
  - b. Identify the applicable NRC regulatory guidance and communications (such as NUREG/CR-4062, NUREG-0800, RIS 2008-12, GL 81-38, RG 4.21, etc.) and industry guidance (such as EPRI, 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 ventilation exhaust system, structural requirements, shielding considerations, capacity, sizing, airborne radioactivity and area radiation monitoring, 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.

- e. Identify and describe the associated programs and procedures that will be used to comply with Federal regulations and conform to NRC regulatory guidance, communications, and industry guidance.
- f. Identify and describe the ITAAC that will be used to ensure acceptable construction and operation of the interim radioactive waste storage facility, or justify its exclusion.

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

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#### **SUPPLEMENTAL INFORMATION:**

Currently, Comanche Peak Units 1 and 2 are storing Class B and Class C low-level waste on-site and transporting waste for offsite disposal periodically. Before detailed design for the radwaste interim storage facility is completed for Units 1 through 4, Luminant intends to obtain and evaluate the operational details for potential offsite disposal, including the Waste Control Specialist (WCS) waste disposal facility in Andrews County, Texas, and incorporate that information into the waste disposal strategy. This will allow Luminant to appropriately design and size the facility for its low-level waste storage needs based on offsite disposal options that are projected to be available during the operation of the Comanche Peak units. Due to the dynamic nature of the availability of offsite disposal facilities, it is premature to complete the detailed design of the interim storage facility at this time.

The FSAR has been revised to include the basic design requirements to satisfy NRC regulations. The interim facility is designed to safely handle, store, monitor and control Class B and C stabilized waste in accordance with the requirements established in NUREG-0800, Appendix 11.4-A. These requirements include the exposure limits of 40 CFR 190 and 10 CFR 20.1302. The design further includes features for monitoring the integrity of waste containers, for detecting potential leakage and radiation in the facility, fire protection, ventilation capability to prevent the buildup of hydrogen gases to the lower flammability limit, and provisions for air sampling for worker and environmental safety.

The storage facility also incorporates the guidance of Generic Letter 81-38 and SECY 94-198. The design and operation of the facility ensure that the radiological consequences of design basis events (fire, flood, and tornado) do not exceed a small fraction of the 10 CFR 100 dose limit. In addition, the guidance provided by RG 8.8 is incorporated into the facility design by including remote waste handling capability to ensure worker radiation exposure is as low as reasonable achievable.

As noted in the FSAR, the current design of the interim facility includes sufficient volume for up to 10 years of waste storage for all four nuclear units based on Luminant's experience in operating Units 1 and 2 for many years. FSAR Rev. 2 already identifies design features such as separate storage areas for mixed waste and the temporary storage of large equipment items, special shielding for storage vaults, overall facility shielding, the use of ventilation systems and fire protection systems with appropriate radiation monitoring to prevent the spread of contamination, and a remotely-operated crane with closed circuit television and special lighting. Although the detailed design has not been completed, the FSAR has been revised as shown in the attached mark-ups to identify the design features to be applied as appropriate during progression of the detailed design to address the regulatory guidance for interim radwaste storage.

#### Impact on R-COLA

See attached marked up FSAR Revision 2 pages 11.4-3 and 11.4-4.

Impact on S-COLA

None; this response is site-specific.

Impact on DCD

None.

**Comanche Peak Nuclear Power Plant, Units 3 & 4**  
**COL Application**  
**Part 2, FSAR**

CP COL 11.4(1) Replace the last sentence of the fourth paragraph in DCD Subsection 11.4.2.3 with the following.

A common radwaste interim storage facility is provided between Units 3 and 4 and is designed to store classes A, B, and C wastes from all four CPNPP units for up to 10 years. The common radwaste facility is designed to maintain onsite and offsite radiological doses within the limits in 10 CFR Part 20 and to maintain occupational exposures ALARA. This common radwaste interim storage facility reflects the site-specific waste volume reduction requirements and the current waste disposal strategy of the State of Texas. As design proceeds, the interim storage facility design may be revised to meet future waste acceptance and disposal criteria.

The common radwaste interim storage facility also includes a separate storage area for mixed waste and temporary staging of large equipment items for maintenance.

~~Specially shielded above grade cell vaults capable of storing a number of containers each are provided in the Remote Handled waste storage bay for very high activity Class B, C waste. Facility shielding is designed to meet 10CFR-20 and 40 CFR 190 dose levels and minimize total facility construction costs.~~

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4-4 S01

~~The facility is designed to have separate control and equipment room ventilation, radiation monitoring, and fire protection systems designed to meet minimum essential requirements, and reduced capital cost.~~

~~The facility have remotely operated bridge crane with closed circuit television cameras and crane mounted storage bay lighting sources. Optimal crane designs are used to minimize total facility construction cost.~~

The radioactive mixed waste storage area is designed and constructed in accordance with permit application for its operation received from the State of Texas Commission on Environmental Quality.

~~Primary regulations and NRC/Industry guidance covering the design and operation of interim radioactive waste storage facilities are 10 CFR 20, 10 CFR 20.1801, 10 CFR 50 Appendix A, GDC 61 and 63, 10 CFR 61, 10 CFR 71, 40 CFR 190, 40 CFR 173, NUREG 0800 SRP Appendix 11.4 A, Generic Letter 81-38, Information Notice No. 89-27 and SECY 94-0198. The interim storage facility is designed to meet the guidance of NUREG-0800 Appendix 11.4-A. The facility design and operation ensure that radiological consequences of design basis events (such as fire, tornado, seismic occurrence, and flood) do not exceed a small fraction of 10 CFR 100 dose limits. The facility also meets the guidance provided in Generic Letters 80-09, 81-38, and 81-39, and in SECYs 94-198 and 93-323. The facility is located within the plant's protected area and meets the dose limits set in 40 CFR 190 as implemented under 10 CFR 20.1301 (e) and 10 CFR 20.1302. Onsite dose limits from the radwaste interim storage facility meet the requirements of 10 CFR 20, including the ALARA principle of 10 CFR 20.1101.~~

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**Comanche Peak Nuclear Power Plant, Units 3 & 4**  
**COL Application**  
**Part 2, FSAR**

In accordance with 10 CFR 20.1406, the facility includes design features that would minimize contamination of the waste facility and environment to the extent practicable; facilitate eventual decommissioning; and minimize the generation of extraneous radioactive waste. All potential radionuclide release pathways are monitored in accordance with 10 CFR 50, Appendix A.

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The containers selected for use in the facility are chosen based on their ability to maintain integrity over their storage life, and compatibility with the types of waste stored. Additionally the containers are inspected periodically to ensure container integrity is maintained. The facility is also equipped with provisions for collecting liquid drainage and sampling of collected liquids. The design of the facility also uses shielded vaults for Class B and C waste; includes separate control and equipment room ventilation systems and airborne radiation monitor; and a remote bridge crane with closed circuit television cameras.

Detailed records are maintained for all waste stored in the facility including: waste type, waste contents, radionuclides and radioactive material, dates of storage, shipment, and other relevant data. The facility has a ventilation exhaust system and associated airborne radioactivity monitoring, and a fire protection system to detect and suppress fires.

In accordance with the regulations and guidance listed above, when the detailed design of the facility is performed, Luminant will consider the use of volume reduction techniques (such as compactors or shredders), transportation and lifting devices to prevent dropped containers, and sloped floors, curbs, and sumps to collect and contain spills or leakage. The facility design will consider proper shielding to reduce radiation levels. The detailed design will also consider the use of equipment for decontamination and repackaging of waste containers.

This interim storage facility is provided with the knowledge that as of July 1, 2008, the low level radioactive waste disposal facility in Barnwell, South Carolina, is no longer accepting Class B and C wastes from sources in states such as Texas that are outside of the Atlantic Compact, and that the disposal facility in Clive, Utah, is still accepting Class A waste from out of state. Class B and C waste constitutes a small fraction of the total low level radioactive waste that will be generated by CPNPP.

CPNPP Units 3 and 4 are scheduled to load fuel and begin commercial operation no earlier than 2016. Therefore, these units will not be generating Class B and C waste prior to that time. Although the interim storage facility is designed to store the Class A, B and C wastes generated by CPNPP Units 1, 2, 3, and 4 for 10 years, the facility could store waste for a proportionally longer period of operation if only Class B and C wastes were to be stored in that facility. It is likely that another disposal facility will be available that will accept Class B and C waste from sources in Texas well before the storage space in the interim storage facility is filled. In particular, in 2004, Waste Control Specialists applied for a license from the Texas Commission on Environmental Quality to develop a disposal facility in Andrews County, Texas, for Class A, B, and C waste. In August 2008 Waste