January 7, 2008

Mr. M. R. Blevins
Executive Vice President
& Chief Nuclear Officer
Luminant Generation Company LLC
ATTN: Regulatory Affairs
P. O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION, LICENSE AMENDMENT REQUEST 07-004, CHANGES TO TECHNICAL SPECIFICATIONS TO REVISE RATED THERMAL POWER FROM 3458 MWT TO 3612 MWT (TAC NOS. MD6615 AND MD6616)

Dear Mr. Blevins:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated August 28, 2007, TXU Generation Company LP (subsequently renamed Luminant Generation Company LLC) submitted Technical Specification changes to revise the rated thermal power for Comanche Peak Steam Electric Station, Units 1 and 2, from 3458 megawatts thermal (MWt) to 3612 MWt for NRC review in accordance with Section 50.90 of Title 10 of the *Code of Federal Regulations*.

The NRC staff has determined that additional information is required to complete the review of the application. The specific information requested is addressed in the enclosure to this letter. It should be noted that not all of the technical branches have completed their review of the application; therefore, this is a partial request for additional information (RAI). Additional RAIs will be transmitted as the rest of the technical branches complete their review. The enclosed RAI was also sent to Mr. Jimmy Seawright via e-mail on December 12, 2007, December 28, 2007, and January 7, 2008. You are requested to provide your response to the RAI by January 31, 2008.

It may be noted that RAIs from some of the branches were formally transmitted to you by letter dated December 11, 2007, and the response to these RAIs is due by January 11, 2008.

The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for NRC staff to complete its review and contribute toward the NRC's goal of efficient and effective use of staff resources.

If you have any questions, please contact me at (301) 415-3016.

Sincerely,

/RA/

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosure: Request for Additional Information

cc w/encl: See next page

If you have any questions, please contact me at (301) 415-3016.

Sincerely,

/RA/

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

RELATED TO REVIEW ASSOCIATED WITH

STRETCH POWER UPRATE

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-445 AND 50-446

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated August 28, 2007, TXU Generation Company LP (subsequently renamed Luminant Generation Company LLC) submitted Technical Specification (TS) changes to revise the rated thermal power for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2, from 3458 megawatts thermal (MWt) to 3612 MWt for NRC review.

The NRC staff has determined that the following additional information is required to complete the review of the application. It should be noted that not all of the technical branches have completed their review of the application; therefore, this is a partial request for additional information (RAI) based on the review performed by the following branches:

- Accident Dose Branch
- Containment and Ventilation Branch
- Steam Generator Tube Integrity and Chemical Engineering Branch
- Balance of Plant Branch

Additional RAIs will be transmitted as the rest of the technical branches complete their review. This RAI was also sent to Mr. Jimmy Seawright via e-mail on December 12, 2007, December 28, 2007, and January 7, 2008.

ACCIDENT DOSE BRANCH

1. In WCAP-16840-P, "Comanche Peak Nuclear Power Plant, Units 1 and 2, Stretch Power Uprate Licensing Report" (SPULR), it is stated that an updated reactor coolant system (RCS) mass is used for the following radiological consequences analyses: Main Steam Line Failures Outside Containment (Section 2.9.2), Reactor Coolant Pump Locked-Rotor Accident (Section 2.9.3), Control Rod Ejection Accident (LR Section 2.9.4), Failure of Small Lines Carrying Primary Coolant Outside Containment (Section 2.9.5), and Steam Generator Tube Rupture (Section 2.9.6). What is the updated RCS mass value?

2. Considering the updated RCS mass, what sump liquid volume value is used as an assumption for the emergency core cooling system leakage pathway analysis in the loss-of-coolant accident (LOCA) radiological consequences analysis?

3. In SPULR Section 2.9.4, "Radiological Consequences of a Control Rod Ejection Accident," it is stated that the steam releases for the Control Rod Ejection Accident

ENCLOSURE

radiological consequences analysis are recalculated and described in Section 2.9.10. However, upon review of Section 2.9.10, the steam releases for this analysis was not discussed. Please provide this information.

4. In SPULR Section 2.9.7, “Radiological Consequences of a Design Basis Loss-of-Coolant Accident,” it is stated that an updated modeling was used to calculate the whole body dose to the Control Room operators from external sources. Please provide the calculation and results of this analysis and identify what is updated.

5. In SPULR Section 2.9.8, “Radiological Consequences of Fuel Handling Accident,” it is stated that a fuel decay time of 50 hours was used for the analysis. By what means do you control movement of the fuel prior to 50 hours?

CONTAINMENT AND VENTILATION BRANCH

1. SPULR Section 2.3.5 “Station Blackout”

Subsections 2.3.5.2.1 and 2.3.5.2.3 provide the conservative maximum temperatures for a four-hour coping period and concludes that there is no impact due to the stretch power uprate (SPU) on equipment required to cope with Station Blackout (SBO). Provide details of how the calculated temperatures compare with pre-SPU conditions and the operability evaluations performed.

2. SPULR Section 2.6 “Containment Review Considerations”

Verify that all input parameters to the containment peak pressure and temperature, environmental qualification and subcompartment analyses remain the same as those in the updated final safety analysis report except for those affected by the SPU. For example, containment volume, heat sink descriptions, heat exchanger performance, equipment flow rates and flow temperatures, initial relative humidity, ultimate heat sink temperature, etc. Justify any changes made for the SPU analyses.

Subsection 2.6.1.2.3 assumes the same spray efficiency for both injection and recirculation phases for the containment spray system. Explain why the same spray efficiency is used for both injection and recirculation phases of LOCA when the spray water temperature is much higher during the recirculation phase. Why is spray efficiency used rather than allowing GOTHIC to calculate the heat and mass transfer to the spray drops?

3. SPULR Section 2.6.2 “Subcompartment Analyses”

Provide the value of pressure differential calculated for the Residual Heat Removal line break within the steam generator (SG) compartment for CPSES, Units 1 and 2, and for the spray line break within the pressurizer cubicle for CPSES, Unit 1 with the Δ76 model SG. Also provide the acceptance criterion for each.

4. SPULR Section 2.6.4 “Combustible Gas Control System”

Is metal-water reaction increased by the SPU? What is its effect on containment response? What, if any, changes are necessary to the hydrogen purge system operation due to the SPU?

5. SPULR Section 2.7.4 “Spent Fuel Pool Area Ventilation System”

Subsections 2.7.4.2.2 and 2.7.4.2.3 indicate that the decay heat in the spent fuel will increase due to the SPU conditions, but the pool water temperatures will remain below pre-SPU design limits. Based on this, it was concluded that the spent fuel pool area ventilation system will maintain the required temperature conditions for personnel and equipment during SPU operation. Are the area coolers designed for the pool temperature at the design limits? Clearly define the areas that will see higher heat loads due to the SPU, the magnitude of the increase, and the basis for determining that the existing system(s) are adequate under post SPU conditions. Also, address whether there are any effects on the ventilation system due to the SPU that could result from loss of SFP cooling.

6. SPULR Section 2.7.5 “Auxiliary and Radwaste Area and Turbine Area Ventilation Systems”

Subsections 2.7.5.2.2 and 2.7.5.2.3 discuss the changes in heat loads for the ventilation subsystems in areas served by the auxiliary (Auxiliary Building ventilation) and radwaste area ventilation systems and the turbine area (Turbine Building area ventilation) ventilation systems. The evaluation concludes that the increase in the heat loads caused by the SPU will have no effect on the temperature conditions inside these areas. Clearly define the areas that will see higher heat loads due to the SPU, magnitude of the increase, and the basis for determining that the existing systems are adequate under post SPU conditions.

Subsection 2.7.5.2.3 also includes a statement that “for plant areas that use outside air exchange to provide cooling, outside air temperature changes dominate any potential temperature changes caused by the SPU.” Staff requests clarification of this statement. Are the systems designed for specific outdoor and indoor design temperatures? Assuming the calculations were done with steady state conditions, what benefit will outside air temperature changes have on days when the outside air temperature exceeds the selected value?

7. SPULR Section 2.7.7 “Other Ventilation Systems (Containment)”

Subsection 2.7.7.2.3 provides the results of the evaluation in terms of an increase in the containment bulk air temperature of less than 0.15 °F (degrees Fahrenheit) from current observed level. Provide details of the analysis or calculations performed to predict the temperature increase based on current observed level. Is it based on calculations different from design basis calculations?

STEAM GENERATOR INTEGRITY AND CHEMICAL ENGINEERING BRANCH

1. In SPULR Section 2.2.2.5.2.1, page 2.2.2-51, it is stated that the stress and fatigue results were calculated by applying scale factors to the previously calculated baseline stress and fatigue values. Describe the scale factor(s) used.

2. Confirm that the SPULR SG tube integrity analyses addresses the current condition of your SGs (e.g., plugs, tube repairs, loose parts, etc.). In addition, provide confirmation that your SG tube plugging criteria for CPSES, Units 1 and 2 is still appropriate for SPU conditions, given the guidance in Regulatory Guide 1.121, "Bases for Plugging Degraded PWR (Pressurized-Water Reactor) Steam Generator Tubes."

3. In SPULR Section 2.1.8, it is indicated that the Flow-Accelerated Corrosion (FAC) program implements the guidelines in Electric Power Research Institute (EPRI) Report NSAC-202L, "Recommendations for an Effective Flow-Accelerated Corrosion Program." However, the revision of the report is not specified. It is noted by the NRC staff that the latest revision, Revision 3, was issued by EPRI in May 2006 and includes feedwater heaters and other vessels. Describe which heaters and/or vessels are included in the CPSES, Units 1 and 2 FAC program and the results of the last inspection. Also, discuss whether additional inspections will be performed to assess wear prior to entering SPU conditions.

4. Section 3.0 of the Spent Fuel Pool Criticality Analysis, WCAP-16827-P (SFPCSA) discusses the proposed RackSaver inserts for the spent fuel pool (SFP). These inserts, which are to be utilized in the CPSES, Units 1 and 2 SFPs, are chevron-shaped and fabricated from two sheets of aluminum-boron carbide metal matrix composite material.

   Provide the following additional information for the RackSaver inserts:

   - Qualification test reports.

   - Details of the fabrication process (e.g., anodizing, welding versus mechanical fasteners, etc.) and the surveillance program for degradation monitoring. Also, provide the acceptance criteria for the surveillance program for the RackSaver inserts.

BALANCE OF PLANT BRANCH

1. Section 2.5.1.3.2.2.3 of the SPULR, "Evaluation of Piping Failures," describes that, although there are no changes to the design conditions of the safety injection system due to the SPU, there are insignificant changes in the volumes of fluid or the mass and energy release for the safety injection system break scenarios. Explain the cause of the changes in fluid release and identify any changes in analysis assumptions, methodology, and design inputs between the existing analyses and the analysis performed for SPU conditions.

2. Section 2.5.1.3.2.2.4 of the SPULR, "Summary of Impact on Building Environments," describes that the existing flooding volume for feedwater pipe breaks is still bounding for

SPU. Identify any changes in analysis assumptions, methodology, and design inputs between the existing flooding volume analysis and the analysis performed for SPU conditions.

3. Section 2.5.2.2.2 of the SPULR, “Description of Analyses and Evaluations,” describes that the pressurizer relief tank (PRT) design is conservatively sized to condense and cool a steam discharge equal to 105 percent of the full-power pressurizer steam volume, and that the loss of external electrical load transient analysis determined that the pressurizer steam mass and energy discharged into the PRT is less than the design-basis discharge. However, the CPSES, Units 1 and 2 Final Safety Analysis Report (FSAR), through Amendment 101, states that the PRT is sized to receive and condense a discharge of 110 percent of the full-power pressurizer steam volume and that this steam volume requirement is approximately that which would be experienced if the plant were to suffer a complete loss of load accompanied by a turbine trip, but without the resulting reactor trip. Clarify the correct portion of the full-power pressurizer steam volume the PRT is sized to receive and how the loss of external electrical load transient analysis described in the SPULR compares with the event described in the FSAR.

4. Section 2.5.4.1 of the SPULR, “Spent Fuel Pool Cooling and Cleanup System,” describes that, although there are no modifications to the design of the SFP cooling and cleanup system related to the SPU, the system is capable of maintaining the pool temperature limit at a total heat load of 57.9 million British thermal units (BTU) per hour at 150 hours after shutdown, which is more challenging to the cooling system than the total heat load of 56.3 million BTU per hour at 168 hours after shutdown listed in Section 9.1.3 of the CPSES, Units 1 and 2 FSAR. Explain how the temperature limit is maintained at the higher heat load and identify any changes in analysis assumptions, methodology, and design inputs between the existing analyses described in the FSAR and the analysis performed for SPU conditions.

5. Section 9.2.2.3 of the CPSES, Units 1 and 2 FSAR describes that valves CC-0107, CC-0109, CC-0157, and CC-0158 have modified discs which have been drilled to serve as flow restriction orifices. These valves are closed to provide acceptable component cooling water (CCW) flow balancing for design-basis accidents to limit heat addition to CCW. Describe how the heat addition to the CCW system at SPU design-basis accident conditions has been evaluated to demonstrate that the CCW temperature is maintained at 135 °F or below during containment spray recirculation with a service water system temperature of 102 °F, consistent with the discussion in Section 2.5.4.3.2.3 of the SPULR. Also, clarify the basis for concluding the heat addition from normal shutdown cooling at a CCW temperature of 122 °F is more limiting than the post-accident condition.

6. Section 10.4.9 of the CPSES, Units 1 and 2 FSAR states that the auxiliary feedwater (AFW) system is capable of supplying the minimum required flow to at least two of the effective SGs against a back pressure equivalent to the accumulation pressure of the lowest set safety valve (1236 pounds per square inch absolute) plus the system frictional and static losses, and Section 2.5.5.1 of the SPULR states that the setpoints for the main steam safety valves would be unchanged for SPU operation. In addition, the Bases for TS 3.7.5 state that a single motor-driven AFW pump provides 100 percent of the

required system capacity. Identify the most limiting event with respect to AFW flow capacity and address whether a single motor-driven AFW pump would continue to provide 100 percent of the required capacity at the increased decay heat rate associated with the SPU.

7. Section 10.3.2.2 of the CPSES, Units 1 and 2 FSAR states that the capacity of each Atmospheric Relief Valve is sufficiently large to allow the plant to be cooled from no-load temperature to the residual heat removal system cut-in temperature of 350 °F prior to the time that the condensate storage tank is exhausted. Describe how this design capability was confirmed for the increased decay heat rate associated with the SPU.

8. Section 11.3.2.1.1 of the CPSES, Units 1 and 2 FSAR states that a catalytic recombiner recombines hydrogen brought into the Gaseous Waste Management System (GWMS) with a controlled amount of oxygen to form water. The control system for the recombiner maintains an oxygen lean mixture to preclude the possibility of a hydrogen explosion. Describe how the SPU affects the ability to preclude creation of potentially explosive gas mixtures in the GWMS.