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Ref. # 10 CFR 52

March 30, 2010

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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION NO. 4316

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein the response to Request for Additional Information (RAI) No. 4316 for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. This RAI involves providing makeup water to the ultimate heat sink basins under accident conditions.

Should you have any questions regarding this response, 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 March 30, 2010.

Sincerely,

Luminant Generation Company LLC

Donald R. Woodlan for

Rafael Flores

Attachment: Response to Request for Additional Information No. 4316 (CP RAI #142)

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NRD

Electronic distribution w/attachment

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4

Luminant Generation Company LLC

Docket Nos. 52-034 and 52-035

RAI NO.: 4316 (CP RAI #142)

SRP SECTION: 02.04.14 - Technical Specifications and Emergency Operation Requirements

QUESTIONS for Hydrologic Engineering Branch (RHEB)

DATE OF RAI ISSUE: 2/23/2010

QUESTION NO.: 02.04.14-3

NUREG-0800, Standard Review Plan (SRP), Section 2.4.14, 'Technical Specifications and Emergency Operation Requirements,' establishes criteria that the NRC staff intends to use to evaluate whether an applicant meets the NRC's regulations.

By letter dated September 30, 2009, the NRC staff issued RAI ID 3674 (RAI No. 96) Question Number 14277 (02.04.14-1), in which the NRC staff asked "Provide a description of the monitoring, notification, and corrective procedures that would ensure that interruption of makeup water flow to the essential service water system (ESWS) would trigger actions to maintain the reliability of the ultimate heat sink (UHS) under all operating or accident conditions, or would trigger the initiation of shutdown until makeup water flow is restored."

The applicant provided its response in document CP-200901560-Log No TXNB-09064 (ML092740132) executed on November 11, 2009. The NRC staff has reviewed the response and has determined that additional information is needed in order to complete its review.

The applicant's response appropriately describes the water level monitoring that would trigger closure of blowdown control valves. The applicant also describes how UHS basin inventory is assured through periodic surveillance described in plant technical specifications. The applicant is requested to describe how a safe sufficiency of the UHS basin inventory is protected against drift and evaporation losses during an interruption of makeup water to the UHS basins.

In order to make sure that safe shutdown is possible in accordance with the practice of safe operation of a plant, the NRC staff requests that the applicant describe the procedures that would be followed to achieve safe shutdown following interruption of makeup water flow and once the trigger level of water inventory in the UHS basin is activated as a result of low water inducing processes such as drift and evaporation losses.

This is supplemental RAI 2.4.14-01-S.

ANSWER:

Each of the four UHS basins contains 33 1/3 percent of the water volume required to dissipate 100 percent of the essential service water (ESW) heat load. Thus only three basins are required to operate. During normal operation of the ESW system, if all water makeup capability to the UHS basins is lost and basin inventory decreases below the level required by Technical Specification (TS) 3.7.9, the operators will take action to restore UHS water levels to the required limit within 72 hours. Restoration of required water level may include transferring water from the non-operating basin to the operating basins. As stated in the Bases for TS 3.7.9, 72 hours is reasonable based on the low probability of an accident occurring during the 72 hours, the considerable cooling capacity still available in the basins, and the time necessary to shutdown if required. Operating and emergency operating procedures per FSAR Subsection 13.5.2.1 will address the actions needed to restore level in the UHS basins.

If basin level cannot be restored within 72 hours, in accordance with TS 3.7.9 the operators will conduct a normal, controlled plant shutdown to be in Mode 3 within 6 hours and in Mode 5 within 36 hours. As stated in the TS Bases, these times are reasonable based on operating experience to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. As discussed in FSAR Subsection 9.2.5.2.1, the UHS/ESW systems are capable of cooling the reactor coolant system to less than 200^{O}F within 36 hours after shutdown. Ample UHS basin water will be available for a normal, controlled plant shutdown (36 hours versus 30-day post-accident) and in the non-accident situation ample time is available for the operator to maintain sufficient UHS basin level to support shutdown cooling.

The required water inventory of 2.80 million gallons for each of the four UHS basins for the 30-day emergency cooling has been calculated to include maximum evaporation and drift losses during the most severe safe shutdown condition coincident with loss of offsite power (LOOP) and without makeup. This volume does not include the water volume in the ESW pump intake basin so that the required NPSH is maintained to ensure cooling of ESW heat loads and transfer of cooling water between basins during the 30-day period as necessary. It is assumed that two of the four basins are aligned to the ESW pumps at the onset of the accident (one train is out of service for maintenance and one is assumed to fail). Based on the UHS inventory maintained in accordance with Technical Specifications, three operable basins provide a combined cooling water inventory sufficient for 30 days of design basis accident mitigation without makeup. Therefore, transfer pump operation is not a time-critical operator action during a design basis event. Actual transfer pump operation during emergency operating procedure implementation would depend on plant conditions, including availability and restoration of ESWS/UHS divisions, establishing make-up, and indicated basin level. The basin level alarm setpoint is such that ESW pump NPSH is maintained and thus no damage will occur to these pumps. The basin transfer operation is dictated by procedures.

More detailed information on the sufficiency of the UHS basin water inventories to provide the required volume for emergency cooling was provided in the responses to RAI No. 3762 (CP RAI #121) Question 09.02.05-5 (ML093520667) and RAI No.3113 (CP RAI #90) Question 16-1 (ML093200501). The FSAR subsections were revised to include the information provided in these RAIs.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4

Luminant Generation Company LLC

Docket Nos. 52-034 and 52-035

RAI NO.: 4316 (CP RAI #142)

SRP SECTION: 02.04.14 - Technical Specifications and Emergency Operation Requirements

QUESTIONS for Hydrologic Engineering Branch (RHEB)

DATE OF RAI ISSUE: 2/23/2010

QUESTION NO.: 02.04.14-4

NUREG-0800, Standard Review Plan (SRP), Section 2.4.14, 'Technical Specifications and Emergency Operation Requirements,' establishes criteria that Staff intends to use to evaluate whether an Applicant meets the NRC's regulations.

By letter dated September 30, 2009, the NRC staff issued RAI ID 3674 (RAI No. 96) Question Number 14278, in which the NRC staff asked "Provide a description of how sufficient cooling capacity and safety within the UHS and ESWS would be maintained during the failure of two or more cooling tower basins as a result of a single hydrologic event or other accident representing a single failure."

The applicant responded in document CP-200901560-Log No TXNB-09064, executed on November 11, 2009. The NRC staff has reviewed the response and has determined that additional information is needed in order to complete its review.

The applicant responded that the safety related plant elevation of 822 feet is greater than the design basis flood elevation reported in FSAR 2.4.2 through 2.4.11. The FSAR does reference the nuclear island safety elevation as 822 feet, but does not state explicitly the safety elevation applicable to the UHS structures.

In order to have a uniform parameter to relate to hydrologic hazard induced mechanisms and provide assurance that the safety margins are not exceeded, the NRC staff requests that the applicant state explicitly the safety elevation applicable to the UHS structures, and that the applicant clarify whether the design basis flood elevation is above or below the safety elevation applicable to the UHS structures.

This is supplemental RAI 2.4.14-02-S.

ANSWER:

The safety elevation applicable to the CPNPP Units 3 and 4 UHS structures is 822 ft MSL. The design basis flood elevation (807.87 ft MSL) is below the safety elevation applicable to the UHS structures (822 ft MSL).

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.