PMComanchePeakPEm Resource

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Sent: Tuesday, April 27, 2010 2:39 PM
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Cc: ComanchePeakCOL Resource; Magee, Michael
Subject: Comanche Peak RCOL Chapter 2 Section 2.3.4 - RAI Number 158
Attachments: RAI 4613 (RAI 158).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 April 27, 2010.

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

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. 4613 COLA Revision 1

RAI Number 158

4/27/2010

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035
SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases
Application Section: Short Term Atmospheric Dispersion Estimates for Accident Releases

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.04-8

NUREG-0800, Standard Review Plan (SRP), Chapter 2.3.4, 'Shortterm Dispersion Estimates for Accident Releases,' establishes criteria that the NRC staff intends to use to evaluate whether an applicant meets the NRC's regulations.

Luminant provided ARCON96 model results and supporting calculations in response to RAI 2.3.4-4. For the releases from the Main Steam Line to the Control Room and the Technical Support Center (TSC) intakes, the wind direction for maximum χ/Qs would indicate that the top of the containment structure may not be the influencing structure. Typically, a structure is considered influencing if its region of influence (see Regulatory Guide 1.194, Figure 1) interacts with the wind direction aligning the source and receptor. Using Figure 2.3-2 of the USAPWR DCD, Rev. 2, and using a wind direction aligning the Main Steam Line source point with the Control Room and TSC intakes, this figure indicates that the top of the containment's region of influence (0.5L from the side of the containment) may not interact with this wind direction.

It's possible that the modeling conducted by Luminant using the 1,200 square meter building dimension for all source-receptor alignments is also suitable for the Main Steam Line releases, but this should be justified for the structures that actually influence this source-receptor alignment or updated. All other calculations provided by Luminant were confirmed by the NRC staff through independent calculations and model runs.

02.03.04-9

NUREG-0800, Standard Review Plan (SRP), Chapter 2.3.4, 'Shortterm Dispersion Estimates for Accident Releases,' establishes criteria that the NRC staff intends to use to evaluate whether an applicant meets the NRC's regulations.

Luminant provided ARCON96 model results and supporting calculations for TSC habitability in response to RAI 2.3.4-4. Please update FSAR Table 2.0-1R to include the TSC χ/Qs compared to the DCD Rev. 2 bounding values.

02.03.04-10

With regard to the ARCON96 supporting calculations, for control room habitability, provided by Luminant, please correct the following typographical errors for the next revision of the COL Part 2 FSAR:

- In the updated Table 2.0-1R (Sheet 3 of 12) provided with the response to RAI 2.3.4-4, for the main control room χ/Q values from the plant vent to the East HVAC Intake, the updated χ/Q for the 4-30 day averaging period should be 9.0E-05 instead of 9.0E-04. In this same table (Sheet 6 of 12), the USAPWR DCD χ/Q values for a release from the Fuel Handling Area should be updated for DCD, Rev. 2.

- In updated COL Part 2 FSAR Table 2.3.338 (Sheet 3 of 7) included with the response to RAI 2.3.4-4, the release points for the Main Steam Relief Valves need to include the word “Relief” in the table (the table currently labels these as Main Steam Valve).

Control room related updates to the tables provided in the response to RAI 2.3.4-4 should also be reflected in the next version of the FSAR.

02.03.04-11

NUREG-0800, Standard Review Plan (SRP), Chapter 2.3.4, 'Shortterm Dispersion Estimates for Accident Releases,' establishes criteria that the NRC staff intends to use to evaluate whether an applicant meets the NRC's regulations.

With regard to the ARCON96 supporting calculations for TSC habitability, provided by Luminant, address the following:

- In Table 2-1 of the TSC calculation document (TXUT-001-FSAR-13.3-CALC-026 R1, “CPNPP Technical support Center Accident χ/Q Calculation”), note that the χ/Q value for the Main Steam Line (West) of 2.4E-04 s/m^3, for the 4 – 30 day averaging period, is above the USAPWR DCD, Rev. 2 value of 2.3E-4 s/m^3.

- In this same table, the 2-8 hours χ/Q value for the Main Steam Relief Valve (West) should be 9.3E-4 instead of 9.3E-3. Also in Table 7-3 of this calculation document, the 0-2 hour χ/Q value under the Main Steam Line heading should be 1.1E-4 instead of 1.1E-5.

Luminant is requested to address these items in the next revision of the COL Part 2 FSAR.

02.03.04-12

NUREG-0800, Standard Review Plan (SRP), Chapter 2.3.4, 'Shortterm Dispersion Estimates for Accident Releases,' establishes criteria that the NRC staff intends to use to evaluate whether an applicant meets the NRC's regulations.

FSAR Table 2.0-1R does not give the site-specific onsite control room χ/Q values for each release point for the main control room (MCR) inleak, but instead states that other intake χ/Q values are bounding. Footnote (j) to the table explains that the MCR inleak χ/Qs were conservatively determined using the closer of either the Electrical Room HVAC intake or the Control Room HVAC intake. Provide the Comanche Peak Nuclear Power Plant, Units 3 and 4 χ/Q values for the MCR inleak and describe in more detail in FSAR Section 2.3.4 the determination of the χ/Q values as explained in Footnote (j) to FSAR Table 2.0-1R.

An assumption was made in the ARCON96 analysis that because the source-inleak distances are greater than the source-intake distances, the source-intake cases are bounding. However, there are meteorological conditions that can also influence worst case χ/Q values.

If the 90 degree wind sector for the source-inleak alignment is different than the source-intake alignment, could differing meteorological conditions influence χ/Q results? If the wind directions that align the source-inleak cases and the wind directions that align the source-intake cases are different, what are the differences in wind speed and stability class? If for example, wind speeds are generally lower and stability classes are more stable for the source-inleak wind alignment, χ/Q values could possibly be higher even though the distance for the source-inleak alignment is greater than for the source-intake alignment. Were these conditions evaluated?

Include in FSAR Section 2.3.4 a discussion of these issues and a comparison between the onsite control room χ/Q values and the US-APWR inleakage χ/Q values.