

PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Friday, September 25, 2009 4:23 PM
To: Donald.Woodlan@luminant.com; John.Only@luminant.com; cp34-rai-luminant@mnes-us.com; Diane Yeager; Eric.Evans@luminant.com; joseph tapia; Kazuya Hayashi; Matthew.Weeks@luminant.com; MNES RAI mailbox; Russ Bywater
Cc: ComanchePeakCOL Resource; Otto, Ngola
Subject: Comanche Peak RCOL Section 14.3.7 - RAI # 83
Attachments: RAI 3532 (RAI 83).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. Luminant is requested to inform the NRC staff if a conference call is needed.

The response to this RAI is due within 42 calendar days of September 25, 2009.

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
Email Number: 637

Mail Envelope Properties (9C2386A0C0BC584684916F7A0482B6CA0BB185)

Subject: Comanche Peak RCOL Section 14.3.7 - RAI # 83
Sent Date: 9/25/2009 4:22:31 PM
Received Date: 9/25/2009 4:22:33 PM
From: Monarque, Stephen

Created By: Stephen.Monarque@nrc.gov

Recipients:

"ComanchePeakCOL Resource" <ComanchePeakCOL.Resource@nrc.gov>

Tracking Status: None

"Otto, Ngola" <Ngola.Otto@nrc.gov>

Tracking Status: None

"Donald.Woodlan@luminant.com" <Donald.Woodlan@luminant.com>

Tracking Status: None

"John.Only@luminant.com" <John.Only@luminant.com>

Tracking Status: None

"cp34-rai-luminant@mnes-us.com" <cp34-rai-luminant@mnes-us.com>

Tracking Status: None

"Diane Yeager" <diane_yeager@mnes-us.com>

Tracking Status: None

"Eric.Evans@luminant.com" <Eric.Evans@luminant.com>

Tracking Status: None

"joseph tapia" <joseph_tapia@mnes-us.com>

Tracking Status: None

"Kazuya Hayashi" <kazuya_hayashi@mnes-us.com>

Tracking Status: None

"Matthew.Weeks@luminant.com" <Matthew.Weeks@luminant.com>

Tracking Status: None

"MNES RAI mailbox" <cp34-rai@mnes-us.com>

Tracking Status: None

"Russ Bywater" <russell_bywater@mnes-us.com>

Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	649	9/25/2009 4:22:33 PM
RAI 3532 (RAI 83).doc	49658	

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Request for Additional Information (RAI) No. 3532

RAI # 83

9/25/2009

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035

SRP Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Part 10 ITAAC

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

14.03.07-21

Appendix A-2 ITAAC Table a.2-1

“Inspection Tests Analyses” (ITA) 2.a limits inspections of seismic category I components to those listed in Table A.2-2 (i.e. heaters and exhaust fans) of the combined license application (COLA). The NRC staff notes that the third bullet of COL FSAR subsection 9.4.5.3.6 reads that “...All ventilation system equipment and components are classified as equipment class 3, seismic category I.” This indicates that all the structures, systems, and components (SSCs) (instrumentation, ductwork, tornado dampers etc.) displayed in FSAR Figure 9.4-201 are classified as equipment class 3, seismic category I and just as important to system operability and to plant safety as are the heaters and exhaust fans.

The NRC staff requests that these other SSCs be added to Table A.2-2 and be subjected to the same type tests and inspections as described in ITA 2.a.

The regulatory basis for this RAI is the Standard Review Plan (SRP) Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-22

Appendix A-2 ITAAC Table A.2-1

The “Inspection Tests Analyses” (ITA) 3.a and Acceptance Criteria (AC) 3.a do not indicate what actuation signal the simulated signal represents. A simulated emergency core cooling system (ECCS) actuation signal would be a more definitive choice of words. The NRC staff requests that the COL applicant amend the ITA and AC with more definitive words that align with the system’s safety function.

In addition, AC 3.a reads “The simulated test signal exists only at the as-built Class 1E equipment identified in Table A.2-2 under test...”. The NRC staff notes that verifying the non existence of this test signal everywhere else in the plant is an impossible task. The NRC staff request that the COL applicant reword AC 3.a to provide acceptance criteria that is verifiable.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-23

Appendix A-2 ITAAC Table A.2-1

The “Design Commitment” (DC) 3.b and Acceptance Criteria (AC) 3.b lack congruency. DC 3.b reads fine as is. AC 3.b reads:

“The as-built Class 1E electrical cables with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division.”

This wording is confusing and does not preclude the acceptability of having non-Class 1E cables routed in divisional cable trays.

The NRC staff requests that the COL applicant reword AC 3.b for clarity and to preclude the acceptability of having non-Class 1E cables routed in divisional cable trays.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-24

Appendix A-2 ITAAC Table A.2-1

The “Design Commitment” (DC) 4. and Acceptance Criteria (AC) 4. both fail to define what is meant by the phrase “... maintains the proper environmental conditions”

The NRC staff notes that an excerpt from 10 CFR 50, Appendix “B”, Criterion III, Design Control reads:

“Where a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking processes, it shall include suitable qualifications testing of a prototype unit under the most adverse design conditions.”

“Inspection, Tests, Analyses” (ITA) 4. reads “Tests of the as-built UHS ESW pump house ventilation system will be performed.”

Demonstrating the capability of the Comanche Peak Nuclear Power Plant, Units 3 and 4 ultimate heat sink (UHS) essential service water (ESW) ventilation system to maintain the UHS ESW Pump house within design bases limits under the most adverse design conditions is the desired demonstration. The staff acknowledges that testing the system during the most adverse design conditions (e.g. winter / summer environmental extremes, Design Basis Accidents, etc.) is ideal, but not readily attained. Based on this, the NRC staff requests that the applicant demonstrate the system’s capability to maintain the UHS ESW Pump house within design bases limits under the most adverse

design conditions through a combination of testing and scientific analyses. The NRC staff requests that the ITA be reworded to this effect.

In addition the NRC staff requests that the applicant define in the Acceptance Criteria bounding parameters that clearly define the meaning behind the phrase "... maintains the proper environmental conditions".

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-25

Appendix A-2 ITAAC Table A.2-1

The #7 "Design Commitment" (DC), "Inspection, Tests, and Analyses" (ITA) and "Acceptance Criteria" (AC) all refer to "... displays and/or controls" in Appendix A-2 Table A.2-3 on the Remote Shutdown Console (RSC). The NRC staff finds that inspection of Table A.2-3; Appendix A-2 Figure A.2-1; and COL FSAR Figure 9.4-201 only leads to confusion as to what control functions exist at the RSC. The "Control Function" column of Table A.2-3 is not labeled with respect to the main control room (MCR) vs. the RSC.

In addition, the NRC staff found through inspection of COL FSAR Figure 9.4-201 that the equipment numbers for the temperature switches contained in the bottom two rows of Table A.2-3 are associated with a control function and not an alarm function. The "MCR Alarm" column is marked as "Yes" for these temperature switches. It appears that another row with the equipment numbers that trigger the MCR alarms is warranted in Table A.2-3.

To remove these points of confusion and to provide clarity to the ITAAC process, the NRC staff requests that the COL applicant amend as necessary the DC, ITA and AC for line item #7 of Appendix A-2 Table A.2-1 and to amend Table A.2-3.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-26

Appendix A-2 ITAAC Table A.2-1

In line item 5.b of Table A.2-1 "Inspection, Tests, Analyses" (ITA) and "Acceptance Criteria" (AC) 3.a do not indicate what actuation signal the simulated signal represents. A simulated ECCS actuation signal would be a more definitive choice of words. The NRC staff requests that the COL applicant amend the ITA and AC with more definitive words that align with the system's safety function.

In addition, the NRC staff requests additional information about how the systems exhaust fans and heaters respond to the presence of an ECCS signal in the absence of a closed switch from the temperature switches of Table A.2-3 (e.g. VRS-TS-2610 C, D,

E, F or VRS-TS-2615C, D, E, F) and the design basis behind the logic of this equipment response.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-27

Appendix A-2 ITAAC Table A.2-1

For line item 6 of Table A.2-1, the “Design Commitment” (DC) and the Acceptance Criteria (AC) references parameters in Table A.2-3. The last two rows of Table A.2-3 are designated as the room temperatures of ESW Pump Room and the UHS Transfer Pump Room. The “MCR Display” column for these two rows is listed as “No”. For each heater and exhaust fan displayed on COL FSAR Figure 9.4-201, there exists a temperature controller in series with a temperature switch that starts or provides a permissive for the actuating the heater or exhaust fans. For example for the UHS Transfer Pump Room Unit Heater VRS-OEQ-603B two parallel temperature control loops are displayed TS-2625C & TC2625C and TS-2625D & TC2625D.

If temperature controllers TC2625C/D have MCR visual display, then the “MCR Display” column for the last two rows of Table A.2-3 would be incorrectly listed as “No”. The NRC staff request additional information about these parallel temperature control loops and in particular whether the temperature controllers TC2625C/D have a visual display of temperature in the MCR.

The NRC staff notes that an excerpt from SRP Acceptance Criteria #9 of NUREG-0800, SRP 14.3.7 reads “*Tier 1 should address and verify at least the minimum inventory of alarms, controls and indications as derived from the Emergency Procedure Guidelines, the requirements of RG 1.97, and probabilistic risk assessment insights.*” The NRC staff requests additional information about how the COL applicant used these three sources of guidance to ensure that the listing of alarms, parameters and displays contained in Table A.2-3 fulfilled the intent of this excerpt.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.

14.03.07-28

The NRC staff notes that Section III.3 “Review Procedures” of SRP 14.3.7 reads “*Ensure that the plant systems are clearly described in Tier 1, including the key performance characteristics and safety functions of SSCs based on their safety significance*”

The COL applicant did not provide this information in Appendix A-2 of Part 10 of the RCOL. More specifically, an example from the US-APWR Tier 1 DCD ITAAC for the Main Control Room contains discussion of the following attributes.

- 2.7.5 Heating, Ventilation, and Air Conditioning (HVAC) Systems
- 2.7.5.1 Main Control Room HVAC System Design Description

- System Purpose and Functions
- Key Design Features
- Seismic and ASME Code Classifications
- System Operation
- Alarms, Displays, and Controls
- Logic
- Interlocks
- Class 1E Electrical Power Sources and Divisions
- Equipment to be Qualified for Harsh Environments
- Interface Requirements
- Numeric Performance Values

The NRC staff requests that the COL applicant amend its Part 10 ITAAC with this required information and to provide the staff with enough information to complete its safety finding.

The regulatory basis for this RAI is the SRP Acceptance Criteria of NUREG-0800 Section 14.3.7 Plant System – ITAAC.