

PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Thursday, March 24, 2011 8:56 AM
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Cc: ComanchePeakCOL Resource; Kallan, Paul; Nold, David
Subject: Comanche Peak RCOL Chapter 9 - section 9.4.5 - RAI Number 213
Attachments: RAI 5585 (RAI 213).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 March 24, 2011.

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

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Request for Additional Information (RAI) No. 5585, COLA Revision 1

RAI Letter Number 213

3/24/2011

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035
SRP Section: 09.04.05 - Engineered Safety Feature Ventilation System
Application Section: FSAR Section 9.4.5

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

09.04.05-13

Follow-Up RAI

This is a follow-up request for additional information (RAI) to the applicant's response, dated December 16, 2009, to RAI No. 3232, (RAI Letter Number 123), Question No. 09.04.05-8. The staff has documented the following three outstanding issues for applicant resolution:

(1) From the amended FSAR subsection 9.4.5.2.6 as described in Question No. 09.04.05-8, the last sentence of the third paragraph reads:

"The four UHS ESW pump houses are physically separate and independent structures and are each supplied by independent Class 1E power supplies with Emergency Gas Turbine Generators backup."

The NRC staff interprets this statement to read that all Class 1E equipment contained within one ultimate heat sink (UHS) essential service water (ESW) pump house is powered by the same divisional power supply (i.e. redundant divisional trains A, B, C or D). This statement conflicts with the second bullet of FSAR section 9.4.5.3.6 which reads:

"The ESW pump room exhaust fan and the UHS transfer pump room exhaust fan are separated by a three-hour fire rated barrier. Therefore, each fan powered by different Class 1E power supplies is protected and remains functional in the event of a fire in either room."

The staff requests that the applicant amend FSAR subsections 9.4.5.2.6 and 9.4.5.3.6, and other FSAR subsections as necessary to resolve this discrepancy.

(2) From the amended FSAR subsection 9.4.5.2.6 as described in Question No. 09.04.05-8, the first sentence of the ninth paragraph reads:

"The unit heaters in each pump room maintain minimum room temperatures during normal and emergency plant operations, to prevent freezing of instrument lines, the wet pipe sprinkler system, and the standpipe hose station."

From this statement the staff is led to assume that the unit heaters and the exhaust fans of the ESW pump room and of the transfer pump room, will be powered by non Class 1E power supplies during normal plant operation and then switched over to a Class 1E power supplies during and subsequent to postulated accidents including loss of offsite power. The NRC staff requests additional design information about this transition. The staff also requests that the applicant amend FSAR subsection 9.4.5.2.6 and other FSAR sections as necessary to capture this operating characteristic of the system.

(3) From the amended FSAR subsection 9.4.5.2.6 as described in Question No. 09.04.05-8, the first sentence of the tenth paragraph reads:

“The backdraft dampers are Seismic Category I and do not perform an active safety function.”

The NRC staff disagrees with the statement “... do not perform an active safety function”. During the summertime, these dampers will have to change position from the normally closed position to the open position for the UHS ESW Pump House Ventilation System to perform its safety function of keeping the pump house room temperatures within design basis limits. The staff requests that the applicant re-evaluate this sentence and amend the FSAR as necessary to provide greater clarity.

09.04.05-14

Follow-up RAI

This is a follow-up RAI to the applicant’s responses, dated December 16, 2009 and November 13, 2009, to RAIs No. 3232 Question No. 09.04.05-12 (ML093520667) and RAI No. 3532, (RAI Letter Number 83), Question 14.03.07-21 (ML093210468).

The staff notes that the applicant responded to RAI No. 3232, Question No. 09.04.05-12 with the statement:

“The backdraft dampers are Seismic Category I and do not perform an active safety function as indicated in ITAAC Table A.2-2 page 23 (attached). The backdraft dampers are a gravity type and open in the direction of air flow, and close due to the counterbalance when no air flow is present. The backdraft dampers will be procured to withstand the effects of site specific tornado wind and atmospheric differential pressure loading, as the detailed design of the system progresses.”

The staff disagrees with the applicant’s statement that the dampers do not perform an active safety function. During the summer months these dampers must change state from the normally closed position to the open position whenever the exhaust fans are running. This change of state function, allows the ESW Pump House rooms to remain below the design basis limiting temperature of 120°F in support of running the safety related UHS ESW pumps. Conversely during the winter months, these dampers must fail to the closed position to ensure that the ESW Pump House rooms remain above the design basis lower limiting temperature of 40°F. This change of state function, helps to ensure that the safety related UHS ESW pumps remain operable while in standby during normal plant operations.

Based on this the staff resubmits its original request that the COL applicant: (1) amend FSAR subsection 9.4.5.4.6 to include required factory testing of these dampers to demonstrate the dampers capability of withstanding the effects of tornadic winds and atmospheric differential pressure loading; and (2) amend the ITAAC to include verification of the operational capability of the installed safety related backdraft dampers to open upon flow induced demand and to fully close in the absence of flow.

Accordingly, the applicant may need to redress its response to both RAI No. 3232, Question No. 09.04.05-12 and RAI No. 3532, Question 14.03.07-21, when answering this question.

09.04.05-15

Follow-up RAI

This is a follow-up RAI to the applicant's responses, dated December 16, 2009 and November 13, 2009, to RAIs No. 3232 Question No. 09.04.05-12 and RAI No. 3366 (RAI Letter Number 82) Question 14.03.07-15.

The staff concluded that upon review of the ITAAC Table A.2-1 Item 4 that the statement in the Acceptance Criteria (AC) lacked precise definition when compared to the statement contained in FSAR subsection 9.4.5.1.1.6.

The AC reads "*The as-built UHS ESW pump house ventilation system is capable of maintaining area design temperature limits within the respective room.*" The staff concludes that this sentence will not require the COL applicant to satisfy the more restrictive requirements of the safety related design basis of subsection 9.4.5.1.1.6 which reads:

"The UHS ESW pump house ventilation system provides and maintains the proper environmental conditions within the required temperature range (40 °F – 120 °F) to support the operation of the instrumentation and control equipment and components in the individual UHS ESW pump houses during a design basis accident and LOOP with outside ambient design temperature condition of 0% temperature exceedance values."

The staff requests that the applicant amend the AC of ITAAC Table A.2-1 Item 4 to read similar to: "*The as-built UHS ESW pump house ventilation system is capable of maintaining area design temperature within the limits of 40 °F – 120 °F within the respective rooms during a design basis accident and LOOP with outside ambient design temperature conditions of 0% temperature exceedance values (i.e. -5 °F - 115 °F).*" Accordingly, the applicant may need to redress its response to both RAI No. 3232 Question No. 09.04.05-12 and RAI No. 3366 Question 14.03.07-15.

09.04.05-16

Follow-up RAI

This is a follow-up RAI to the applicant's response, dated December 16, 2009, to RAI No. 3232, (RAI Letter Number 123), Question No. 09.04.05-3-4.

In December, 2009 the applicant's responded to Question No. 09.04.05-3-4 with the statement:

"The locations of the missile shields for the UHS ESW pump house are shown in the plan view of the UHSRS in FSAR Figure 3.8-206 at the northwest and southeast corners of each UHS ESW pump house. The missile shields for the transfer pump room air intake and exhaust openings are not shown in FSAR Figure 3.8-206. The locations of the ESW and transfer pump room ventilation opening missile shields are subject to change as detailed ventilation design and equipment layout progresses. FSAR Figure 3.8-206 and related Chapter 3 figures will be revised in a future FSAR Update Tracking Report as the detailed ventilation design and equipment layout progresses."

The staff cannot complete its review and close out this Open Item without bringing closure to this issue. Please state how missile protection will be provided for the ESW and transfer pump room ventilation openings.

09.04.05-17

Follow-up RAI

This is a follow-up RAI to the applicant's response, dated December 16, 2009, to RAI No. 3232, (RAI Letter Number 123), Question No. 09.04.05-5.

In their December, 2009 response to Question No. 09.04.05-5, the applicant indicated that that the detailed evaluation of the flooding event and the detailed design of the floor drains and door sill was not complete. The flooding event evaluation will be described in a new FSAR Subsection 3.4.1.5.3 and the details of the floor drain and sill design will be shown in FSAR Figure 3.8-209 or related FSAR Section 3.8 figures in a future FSAR Update Tracking Report. FSAR Subsection 9.4.5.3.6 will also be revised to reflect the new flooding-related FSAR information.

A search of the Comanche Peak Tracking Reports through Revision 4, does not list this pending final design change. The staff cannot complete its review without addressing this topic. Please provide the staff with the requested information.

09.04.05-18

Follow-up RAI

This is a follow-up RAI to the applicant's response, dated December 16, 2009, to RAI No. 3232, (RAI Letter Number 123), Question No. 09.04.05-10.

(1) The staff disagrees with the statement contained in 2b of the applicant's response "... do not perform an active safety function". During the summer months these dampers

must change state from the normally closed position to the open position whenever the exhaust fans are running. This change of state function, allows the ESW Pump House rooms to remain below the design basis limiting temperature of 120°F in support of running the safety related UHS ESW pumps. Conversely during the winter months, these dampers must fail to the closed position to ensure that the ESW Pump House rooms remain above the design basis lower limiting temperature of 40°F. This change of state function, helps to ensure that the safety related UHS ESW pumps remain operable while in standby during normal plant operations. The staff requests that the applicant re-evaluate this sentence and amend the FSAR as necessary and in particular ITAAC Table A.2-2 and FSAR 9.4.5.2.6, with greater clarity.

(2) The staff notes that Part 10 ITAAC Table A.2-2 lists the safety related temperature switches (e.g. VRS-TS-2610C,D,E,F) for the “ESW Pump Room Temperature” and “UHS ESW pump Room Temperature “ but not their in series Temperature Controllers (e.g. VRS-TC-2610C,D,E,F). The staff requests additional information about the this series safety related/non-safety arrangement and the Class 1E and non Class 1E control circuits.

(3) The staff notes that the safety related temperature switches (e.g. VRS-TS-2610C,D,E,F) do not appear in FMEA Table 9.4-203. The staff requests that these safety related components be added to the Table 9.4-203.