PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Saturday, September 26, 2009 10:19 AM
To: Donald.Woodlan@luminant.com; John.Conly@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: Otto, Ngola; ComanchePeakCOL Resource
Subject: Comanche Peak RCOL Section 14.2 - RAI # 86
Attachments: RAI 3593 (RAI 86).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 37 calendar days of September 26, 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: 640

Mail Envelope Properties (9C2386A0C0BC584684916F7A0482B6CA0BB1BC)

Subject: Comanche Peak RCOL Section 14.2 - RAI # 86
Sent Date: 9/26/2009 10:19:17 AM
Received Date: 9/26/2009 10:19:20 AM
From: Monarque, Stephen

Created By: Stephen.Monarque@nrc.gov

Recipients:
"Otto, Ngola" <Ngola.Otto@nrc.gov>
Tracking Status: None
"ComanchePeakCOL Resource" <ComanchePeakCOL.Resource@nrc.gov>
Tracking Status: None
"Donald.Woodlan@luminant.com" <Donald.Woodlan@luminant.com>
Tracking Status: None
"John.Conly@luminant.com" <John.Conly@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	9/26/2009 10:19:20 AM
RAI 3593 (RAI 86).doc	40954	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Request for Additional Information (RAI) No. 3593

RAI # 86

9/26/2009

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035
SRP Section: 14.02 - Initial Plant Test Program - Design Certification and New License Applicants
Application Section: 14.2

QUESTIONS for Health Physics Branch (CHPB)

14.02-9

10 CFR 50.34(f)(2)(xxvii) and NUREG 0737 III.D.3.3 require licensees to provide monitoring of in plant iodine airborne radioactivity. US-APWR FSAR Tier 2 Table 7.5-3 "PAM Variables" notes that portable air sampling instrumentation should have a range of 1.0E-9 uCi/cc to 1.0E-3 uCi/cc for particulates and radio halogens, using portable sampling and on site analysis. This table also notes that portable radiation survey instruments should have ranges of 1E-3 to 1E4 R/h photon, and 1E-3 to 1E4 rads/h beta and low energy photons. However, COL FSAR Section 14.2.12.1.112 "Personnel Monitors and Radiation Survey Instruments Preoperational Tests" does not provide any guidance or acceptance criteria regarding the sensitivity and range of portable and laboratory instruments used for Radiation Protection.

Please revise and update the COL FSAR Section 14.2.12.1.112 to include acceptance criteria demonstrating that the instruments can accurately respond to the required levels of radioactive material, or provide an alternate approach and the associated justification.

14.02-10

10 CFR 50.34.f(2)(xxvi) [NUREG 0737 III.D.1.1] requires leakage control and detection for systems outside containment that might contain highly radioactive fluids, and requires applicants to submit a leakage control program, including an initial test program and a schedule for retesting systems. US-APWR design certification document (DCD) FSAR Tier 2 Chapter 16, Section 5.5.2, notes the requirement for a leakage minimization program for systems outside containment that might contain highly radioactive fluids. Neither COL FSAR Section 14.2.12.1, "Preoperational Tests", nor COL FSAR Table 14A-201 "Conformance Matrix of RG 1.68 Appendix A Guidance versus Added Test Abstracts in the FSAR" discuss testing these systems for leakage, in accordance with NUREG 0737 III.D.1.1.

Please revise and update COL FSAR Section 14.2 to reflect preoperational leak testing indicated by 10 CFR 34.f(2)(xxvi) and NUREG 0737 III.D.1.1 for Highly Radioactive Fluid Systems Outside Containment, or provide an alternate approach and the associated justification.

14.02-11

Regulatory Guide (RG) 1.68 “Initial Test Programs for Water-Cooled Nuclear Power Plants” notes that 10 CFR 50 Appendix B requires a test program to ensure that all structures systems and components (SSCs) will perform satisfactorily in service. RG 1.68 Position 1(c) notes that tests should be provided for those systems that address limiting condition for operations (LCOs) included in Technical Specifications. Radiation monitoring systems are an integral part of the NEI 97-06 “Steam Generator Program Guidelines” program EPRI Technical Report implementing documents, used to demonstrate compliance with the Primary-to-Secondary Leakage specification in DCD FSAR Tier 2 Chapter 16 (Technical Specifications), subsection 3.4.13. DCD FSAR Tier 2 Section 5.4.2.2 Notes the requirement for a Primary-to-Secondary Leakage program in accordance with the criterion of NEI 97-06.

Neither COL FSAR Section 14.2.12.1, “Preoperational Tests”, nor COL FSAR Table 14A-201 “Conformance Matrix of RG 1.68 Appendix A Guidance versus Added Test Abstracts in the FSAR” discuss verifying that the systems used to demonstrate compliance with the NEI 97-06 Steam Generator leakage detection criteria, have the required detection sensitivity described in the EPRI implementing documents.

Please revise and update COL FSAR Section 14.2 to demonstrate that the Primary-to-Secondary Leakage monitoring instruments have the required sensitivity, or provide an alternate approach and the associated justification.

14.02-12

10 CFR 20.1501 requires surveys for monitoring and control of personnel radiation exposure. RG 1.206 C.I.12.5(1)(c) requires that the applicant have adequate types of instruments. RG 1.206 C.I.12.5.2.1 notes that the applicant should have laboratory equipment to support radiation surveys in the plant. In COL FSAR Section 14.2.12.1.112 “Personnel Monitors and Radiation Survey Instruments Preoperational Tests”, STD COL 14.2(10) addresses pre-operational tests. The NRC staff notes that RG 1.68 (Appendix A, Section 1.k (Preoperational Testing-Radiation Protection Systems)) includes “laboratory equipment used to analyze or measure radiation levels and radioactivity concentrations” as one of the system types that should receive pre-operational testing to demonstrate proper operation. While US-APWR DCD FSAR Tier 2 Section 14.2.12.1.84 addresses the performance of laboratory equipment associated with Post Accident Sample Analysis, neither the DCD or the COL FSAR address testing of radiation protection laboratory equipment, such as Whole Body Counters, and radiation protection air sample counting instruments.

Please revise and update the COL FSAR to include a site-specific pre-operational test for laboratory equipment in FSAR Section 14.2.12.1, or justify the absence of such testing.

14.02-13

RG 1.68 “Initial Test Programs for Water-Cooled Nuclear Power Plants” notes that 10 CFR 50 Appendix B requires a test program to ensure that all SSCs will perform satisfactorily in service. RG 1.206 C.I.14.2.3 notes that the COL Applicant should also describe the types and sources of design performance requirements used to develop the testing procedures. COL FSAR Section 14.2.12.1.112 “Personnel Monitors and Radiation Survey Instruments Preoperational Tests” notes that the tests are to verify the operability of the radiation monitoring system, including alarms, where applicable. However, the test criteria do not discuss the radiation system sensitivity, as it relates to establishing statistically valid and functionally useful alarms (high confidence of activity present on an alarm, along with a low [e.g. 1/10,000] false alarm rate), under expected field conditions.

Please revise and update the COL FSAR Section 14.2.12.1.112 to reflect verification that the alarm provisions of the instrument are functionally viable, or provide an alternate method of verifying instrument functionality and the associated justification.

14.02-14

10 CFR 20.1501(b) requires that instruments used for radiation measurements be periodically calibrated. NUREG-1736 “Consolidated Guidance: 10 CFR Part 20 – Standards for Protection Against Radiation” notes that this is normally done by adjusting an instrument response to reflect the value from a known standard. NUREG-0800 Standard Review Plan (SRP) 14.2 “Initial Plant Test Program - Design Certification and New License Applicants”, requires that each licensee perform, or permit the Commission to perform, tests of radiation detection and monitoring instruments. NRC Information Notice No. 93-30: “NRC Requirements for Evaluation of Wipe Test Results; Calibration of Count Rate Survey Instruments” notes that the licensee must demonstrate that the instrument is calibrated to make measurements and sufficiently sensitive to meet the applicable regulatory requirements in 10 CFR Parts 20. Calibration information can be found in the instrument manufacturer's guidance, however, the licensee, not the instrument manufacturer, is responsible for demonstrating that the instrument and method used are sensitive enough to meet NRC regulatory requirements. The applicant is relying on NEI 07-03 to describe the radiation protection program elements described in SRP Section 12.5. While NEI 07-03A discusses radiation protection instrument calibration, NEI 07-03A does not specifically address the process to be used to ensure that calibration of portable and laboratory instruments is performed using national or international standards guidance. Extensive guidance is available in the national and international community regarding the selection and calibration of radiation protection instrumentation including standards organizations, such as ANSI, IEEE, IEC and NCRP. None of these standards or standards organization are referenced as the basis for portable and laboratory radiation protection instrument calibration. However, in COL FSAR Section 14.2.12.1.112 “Personnel Monitors and Radiation Survey Instruments Preoperational Test”, step (B)(4), the applicant notes that instruments will have been calibrated as required in accordance with vendor instructions. As vendor calibration procedures may optimize instrument function and response to conditions that are not representative of the power plant environment, the licensee is required to determine the appropriate standards to be used as the basis for instrument calibration.

Please update and revise COL FSAR Section 14.2.12.1.112 to reflect the use of consensus standards, in addition to vendor recommendations, as part of the method of

calibration of portable and laboratory radiation protection instrumentation, or describe an alternate approach and the associated justification.