PMComanchePeakPEm Resource

From: Monarque, Stephen
Sent: Thursday, September 24, 2009 5:11 PM
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Cc: Reyes, Ruth; ComanchePeakCOL Resource
Subject: Comanche Peak RCOL Section 6.4 - RAI # 77
Attachments: RAI 3451 (RAI 77).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 24, 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
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Request for Additional Information (RAI) No. 3451

RAI # 77

9/24/2009

Comanche Peak Units 3 and 4
Luminant Generation Company, LLC.
Docket No. 52-034 and 52-035
SRP Section: 06.04 - Control Room Habitability System
Application Section: FSAR Section 6.4

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

06.04-1

Comanche Peak (CP) combined license (COL) 6.4(1) pertains to the evaluation of threats from toxic chemicals of mobile and stationary sources to control room habitability. During the NRC staff's review of the regulatory requirements associated with CP COL 6.4(1), the NRC staff could find no commitment by the applicant nor mechanism in the COL FSAR that will drive the COL applicant to perform future surveys of stationary and mobile sources of hazardous chemicals on a periodic basis.

The NRC staff notes that Regulatory Guide 1.196 Regulatory Position 2.5 "Hazardous Chemicals" states:

> "Regulatory Guide 1.78 encourages licensees to conduct periodic surveys of stationary and mobile sources of hazardous chemicals in the vicinity of their plant sites. The periodicity should be based on the number, size, and type of industrial and transportation activities in the vicinity of the plant and regional and local changes in uses of land. The staff recommends conducting a survey of the location, types, and quantities of the mobile and stationary hazardous chemical sources at least once every 3 years, or more frequently as applicable.
>
> The staff also recommends annual performance of an onsite survey of hazardous chemical sources."

As such, the NRC staff requests additional information as to how the COL applicant intends to satisfy the intent of this regulatory guide during the life cycle of Comanche Peak, Units 3 and 4. The NRC staff requests that the COL applicant amend the COL FSAR to ensure that the intent of this passage from Regulatory Guide 1.196 is satisfied throughout the life cycle of Comanche Peak, Units 3 and 4.

06.04-2

The NRC staff notes that Regulatory Position C.4 “Component Design Criteria And Qualification Testing” of Regulatory Guide 1.52, ‘Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants,’ Revision 3 provides the acceptance criteria with respect to charcoal adsorber weight, type and distribution for CP COL 6.4(4). Some or all of regulatory positions of C.4 may apply when the applicant determines the weight and distribution of the charcoal adsorber. In particular, since the COL applicant commits to the use of the type III impregnated charcoal, the requirements of System Design Criteria 3.6 and Regulatory Position C.4.11 do apply and will serve as the acceptance criteria for the adsorber installed in the ESF filtration units of the MCR HVAC system.

The NRC staff requests that the COL applicant finalize the design, select the weight, type and distribution that satisfies the regulatory criteria and create an ITAAC that verifies the as-built is consistent with the as-analyzed.

06.04-3

The NRC staff’s review of the “as built” listing of the materials of construction for the engineered safety features (ESF) system components per the requirements of CP COL 6.5(4) is not possible at this stage of the licensing process.

The NRC staff requests that the COL applicant select the materials to be used and create an ITAAC that satisfies the requirements of CP COL 6.5(4), Regulatory Guide 1.206 C.I.6.5.1.6 “Materials” and System Design Criteria 3.5 of RG 1.52, or develop an alternative approach that satisfies the regulatory requirements.

06.04-4

As part of its review per the guidance of NUREG-0800, Standard Review Plan (SRP) Chapter 6.4 and Regulatory Guide 1.78, ‘Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release.’ the NRC staff plans to perform a confirmatory calculation for the toxic gas event analyzed as described FSAR subsection 6.4.4.2.

The NRC staff requests that the COL applicant provide the requisite input parameters used in the HABIT EXTRAN and CHEM models and any significant intermediate values.

The NRC staff also requests that the applicant describe all relevant assumptions used in the applicant’s analysis. In particular, the NRC staff requests that the applicant provide the basis for the CHEM model’s flow rate of contaminated toxic air into the CRE (i.e. fresh air intakes and CRE infiltration) Also, identify whether the release was assumed to be a liquid tank burst or a gas tank burst.

The NRC staff will use this information to support the NRC staff’s confirmatory calculation of the event described in FSAR subsection 6.4.4.2.

06.04-5

The NRC staff notes that per the applicant's analysis of FSAR subsection 6.4.4.2 and the expectation created with RG 1.78, the Comanche Peak Nuclear Power Plant, Units 3 and 4 main control room (MCR) operators would don a respirator and protective clothing within approximately 11 minutes from the start of described toxic gas event. The applicant also indicates that the MCR operators … "*have the option of manually actuating the emergency isolation mode of the MCR HVAC System."*

Given the fact that the projected chlorine concentrations within the control room envelope (CRE) peak out at 5.2 parts per million (ppm) (i.e. well below the IDHL) and given the effects of donning respirators (e.g. poor communications, increased risk of operator error), the NRC staff requests that the applicant clarify the operator actions that would be captured in the plant's toxic gas response procedures. Would donning a respirator and protective clothing take precedence over isolating the CRE? Upon the MCR operators sensing the chlorine, would donning a respirator and protective clothing be a mandatory response or a prescribed response?

For all the toxic chemicals of FSAR Table 2.2-214 that screened in as potential threats to the control room, would the control room concentrations of any of these toxic chemicals reach levels perceptible to the MCR operator? How would the procedural response to this (these) toxic gas(es) differ from that for chlorine?

06.04-6

The level of detail provided in FSAR 6.4.3 is not adequate to determine if the regulatory requirements are met. Please provide in the FSAR the essential elements of the training and procedures necessary to demonstrate the regulatory commitments are met. Specifically, what will the operators be directed and trained to do to meet the recommendations in RG 1.196. The NRC staff requests that in responding and revising the FSAR, that the applicant establish a consistency with the following regulatory positions:

- Regulatory Position C.5 "Emergency Planning" of Regulatory Guide 1.78;
- Regulatory Position 2.5 "Hazardous Chemicals" of Regulatory Guide 1.196;
- Regulatory Position 2.2.1 "Comparison of System Design, Configuration, and Operation with the Licensing Bases" of Regulatory Guide 1.196; and
- Regulatory Position 2.7.1 Periodic Evaluations and Maintenance of Regulatory Guide 1.196

Please include a discussion of what operators will be directed to do when they smell toxic gas or are notified by external sources that there was a toxic gas release. Please include a discussion any arrangements that will be in place for notification of the control room when a release has occurred.