PMComanchePeakPEm Resource

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Sent: Wednesday, November 07, 2012 12:39 PM
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Cc: ComanchePeakCOL Resource; Kallan, Paul
Subject: Comanche Peak RCOL Chapter 9 - RAI Number 265
Attachments: RAI_6775 (RAI 265).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 **November 7, 2012.**

Note: The NRC staff requests that the RAI response include any proposed changes to the FSAR.

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 265 (6775)
Issue Date: 11/7/2012
Application Title: Comanche Peak Units 3 and 4 - Dockets 52-034 and 52-035
Operating Company: Luminant Generation Company, LLC.
Review Section: 09.05.04 - Emergency Diesel Engine Fuel Oil Storage and Transfer System
Application Section:

QUESTIONS

09.05.04-1

Applicable CFR Regulation: (1) 10 CFR 50 Appendix A, Criterion 4 “Environmental and Dynamic Effects Design Bases,” and (2) 10 CFR 50.49 “Environmental Qualification of electric equipment important to safety for nuclear power plants”

Applicable NUREG-0800: (1) Standard Review Plan (SRP) 3.11 “Environmental Qualification of Mechanical and Electrical Equipment,” and (2) SRP 9.5.4: **"**Emergency Diesel Engine Fuel Oil Storage and Transfer System**"**

SRP 3.11 “Environmental Qualification of Mechanical and Electrical Equipment” reinforces the requirements of GDC 4. Technical Rational 5 of SRP 11 reads:
“Compliance with GDC 4, "Environmental and Dynamic Effects Design Bases," requires that components important to safety be designed to accommodate the effects of, and be compatible with, the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including LOCAs. Components must be protected against dynamic effects, including those of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit.
GDC 4 is applicable to this section since it provides the requirement for components important to safety to be designed to accommodate the effects of, and be compatible with, the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including LOCAs.

Meeting GDC 4 ensures that equipment important to safety are environmentally designed and qualified, and provides assurance that the equipment will be able to accommodate the effects of, and be compatible with, the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including LOCAs.”

Power Source Fuel Storage Vault (PSFSV)
COL Item 9.5(12) of the US-APWR DCD, Revision 3 requests the applicant to address the following: “The COL Applicant is to address the need for installing unit heaters in the Power Source Fuel Storage Vault during the winter for site locations where extreme cold temperature conditions exist.”

Staff requests clarification of the RCOLA applicant's responsibilities pertaining to the following passages from Section 9.5.4 “Gas Turbine Generator Fuel Oil Storage and Transfer System” of the DCD Revision 3:

US-APWR DCD subsection 9.5.4.2.1, page 9.5-33
"The system is safe from flooding (see Subsection 3.4.1.2). The system is protected from the effects of low temperatures in the building. Each of the four GTG fuel oil storage tanks are contained in a separate, reinforced concrete seismic category I, and missile protected compartment. Each fuel oil storage tank compartment also contains the fuel oil transfer pumps, associated piping, valves, instrumentation, and connections for outside fuel oil supply."

DCD subsection 9.5.4.2.2.1, page 9.5-34
"Each power source fuel storage vault (PSFSV) is provided with a vapor and liquid detection system that is equipped with on-site audible and visual warning devices with battery backup. Each fuel oil storage tank and the transfer pumps are located in a vault identified as the ,PSFSVs and each vault is provided with a manually operated ventilation system for personnel safety to remove any vapors when personnel enter the area. The PSFSV will not have a normally running ventilation system. The ventilation system consists of a supply air opening with a backdraft damper at the ceiling of the vault from the outside, and ducted to the bottom of one side of the vault. This duct will have an in-duct electric heater controlled by a local thermostat in the downstream ductwork. An exhaust fan at the ceiling with a backdraft damper to the outside is ducted to the bottom other side of the vault. This local ventilation system will be turned on locally (or from the MCR) only when personnel are required to enter the area for the performance of surveillances, inspections and maintenance activities.

The in-duct electric heater is provided on the supply air duct so that during the winter, whenever the ventilation system is used the incoming cold outside air is heated and the vault area will be able to be maintained above freezing.

Unit heaters are provided to maintain fuel oil temperature within specification for when the Power Source Fuel Storage Vault temperature may drop below 35ºF. The COL Applicant is to address the need for installing unit heaters in the PSFSV."

The staff noted that Revision 3 of RCOLA FSAR section 9.5.4.2.2.1 "Fuel Oil Storage Tanks and Piping" reads:
'"Insulation and heat tracing on the fuel oil piping in the concrete pipe chase and on a portion of the piping running down into the PSFSV area are provided to maintain fuel oil temperature within specification during winter. The concrete pipe chases between each fuel oil tank room and each PS/B are the areas through which the fuel oil piping passes through. Within each concrete pipe chase is a 3-hour fire rated wall that separates each PS/B from the associated PSFSV. The door and penetrations through each wall are all 3-hour fire rated. One side of each concrete pipe chase is part of a PS/B, which is a normally heated building."

The staff has identified two issues requiring additional information:

(1) Are the fuel oil transfer pumps, associated piping, valves, instrumentation, and connections for outside fuel oil supply housed within each fuel oil storage tank compartment (i.e. vault) environmentally qualified (EQ) safety related equipment? Assuming that at least some of this equipment is EQ, how will the temperature and humidity requirements be maintained within the storage vaults to protect the long term integrity of this equipment?

(2) FSAR section 9.5.4.2.2.1 discusses provisions for maintaining temperatures of the fuel oil within the piping within required specifications. However, there is no discussion of provisions for maintaining fuel oil temperatures within specifications for the fuel oil within the storage tank.

In short there is no discussion of the applicant's responsibility for addressing the need for installing unit heaters in the PSFSV.

The staff requests additional information about these issues and that the applicant amend the RCOLA FSAR with this clarifying information.

Essential Service Water Pipe Tunnel (ESWPT)

From DCD Revision 3 Page 9.2-12
"*The ESWS is designed for operation at low water temperature of 32° F during all modes of plant operation. The COL Applicant is to provide protection of the site specific portions of the ESWS [[such as the ESWS blowdown line, FSS supply line, ESWPT piping running between the nuclear island and UHSRS, and any ESWS piping in the UHSRS]] against adverse environmental, operating, and accident conditions that can occur such as freezing, low temperature operation, and thermal overpressurization."*

The staff finds FSAR information is insufficient with respect to the ESWPT, there is insufficient information in the FSAR for the staff to conclude that the applicant has fulfilled its responsibilities on the above item.

The staff identified three issues requiring additional information:

(1) If there is no EQ equipment within the ESWPT, the FSAR discussion of the pipe tunnel should present this as the basis in Section 3.8.4.1.3.1 for not warranting a safety related HVAC system to maintain temperature and humidity limits within the pipe tunnel.

(2) While the pipe tunnel is cited as being below grade, it is unclear if there are pathways (e.g. doors, hatchways, ventilation systems, etc.) associated with the pipe tunnel that could permit freezing conditions to exist in portions of the tunnel?

(3) FSAR Section 3.8.4.1.3.1 indicates that "*The tunnel is divided into two sections by an interior concrete wall to provide separation of piping trains. Each section contains both ESWS supply and return lines. End walls are also provided where required to maintain train separation."* If there a drainage system within the tunnel, how is this train separation maintained in the design of the drain system?

The staff requests additional information about these issues and that the applicant amend the RCOLA FSAR with this clarifying information.