PMSTPCOL PEmails

From: Muniz, Adrian
Sent: Thursday, May 14, 2009 2:02 PM
To: rhbense@stpegs.com
Cc: STPCOL
Attachments: RAI 2389.doc

Richard:

I have attached to this electronic communication a draft request for additional information (RAI) for Section 8.3.1 of the STP COLA. I will be contacting you to set up a conference call to make sure that STP's understanding of the RAI is clear.

Adrian Muñiz, Project Manager
U.S. NRC

Hearing Identifier: SouthTexas34Public_EX
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Draft Request for Additional Information No. 2389 Revision 2

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 08.03.01 - AC Power Systems (Onsite)
Application Section: SRP 8.3.1

QUESTIONS for Electrical Engineering Branch (EEB)

08.03.01-***

FSAR subsection 8.3.1.1.1 describes the need for tripping the condensate pumps when a feedwater line break inside the drywell is detected and the use of dual trip coils to ensure that tripping will occur. The applicant stated that the breaker control power and trip circuits will not fully meet the RG 1.75 separation requirements.
Discuss the separation guidance criteria of RG 1.75 that are not being met and why this is acceptable. Additionally, discuss the results of the reliability assessment performed in accordance with GDC 21.

08.03.01-***

FSAR subsection 8.3.1.1.1 describes the use of dual trip coils to assure the tripping of the condensate pump circuit breakers in the event of a feedwater line break. Discuss the impact of a breaker failure to trip due to a misoperation or failure of the breaker tripping mechanism.

08.03.01-***

FSAR subsection 8.3.1.1.4.1 describes the use of four 120 VAC "Class 1E instrument power systems", rather than the three identified in the corresponding DCD section. Discuss how the STP logic philosophy differs from the DCD philosophy and discuss the utilization difference between the 120 VAC Class 1E power of this subsection and the 120 VAC vital power in Figure 8.3-3 of the ABWR DCD. Additionally, discuss the impact of a loss of voltage to the instruments supplied by the "Class 1E instrument power systems" for a period of 10 minutes during a station blackout event.

08.03.01-***

In NUREG 0800, Standard Review Plan Section 8.3.1, subsection 4.J., “SRP Acceptance Criteria,” it is stated: “Acceptance criteria for the interface between the onsite ac power system and the offsite power system to satisfy the requirements of GDC 17 in evolutionary light water reactor design applications are documented in SECY-91-078, which states that the design should include at least one offsite circuit to each redundant safety division supplied directly from

one of the offsite power sources with no intervening non-safety buses in such a manner that the offsite source can power the safety buses upon the failure of any non-safety bus." These guidance criteria are reflected in the DCD design where one winding of the reserve auxiliary transformer (RAT) is connected directly to a source breaker of each of the three safety-related buses. The offsite power circuit, as described in FSAR section 8.3.1 and figure 8.3-1, is connected to the safety buses through an intermediate bus that also supplies non-safety loads. Discuss how the STP design meets the SRP and SECY-91-078 guidance and how is it consistent with the DCD design.

08.03.01-***

In FSAR subsection 8.3.1.0.1 regarding the plant investment protection (PIP) buses, it is stated that on loss of normal or alternate preferred power, an automatic transfer of pre-selected buses occurs via dead bus transfer to the combustion turbine generator (CTG) which automatically starts on loss of power. Alternate power to the PIP buses is provided through 4.16 KV bus CTG3 and this same bus is normally supplied by RAT B. Describe the interlock that would prevent paralleling the CTG source with the RAT B source.

08.03.01-***

FSAR subsection 8.3.1.1.1 describes the medium voltage Class 1E power distribution system. Explain why various bus ratings identified in the corresponding section of the ABWR DCD have been deleted.

08.03.01-***

FSAR subsection 8.3.1.1.1 states that Division I, II and III buses are automatically transferred to the diesel generator when the preferred power supply to these buses drops below 70% bus voltage. Regarding bus undervoltage, NUREG 0800, Branch Technical Position (BTP) 8-6, Adequacy of Station Electric Distribution System Voltages states that, in addition to the undervoltage scheme provided to detect loss of offsite power at the Class 1E buses, a second level of undervoltage protection with time delay should be provided to protect the Class 1E equipment. This second level of undervoltage protection is typically well above the 70% voltage level indicated in FSAR Subsection 8.3.1.1.1. Discuss the setting of the second level undervoltage protection and the setting of the timers associated with this protection.

08.03.01-***

FSAR subsection 8.3.1.1.8.2 (item 12) states that the maximum loads, expected to occur for each division, do not exceed 95% of the continuous power output rating of the diesel generator. Based on Table 8.3-1 for Diesel Generator B (Division II), the identified connected load exceeds the kW continuous rating of the diesel generator. Also, the operating loads exceed 92% of the generator continuous rating with an additional 677 kW in standby and short time loads.

Confirm that the total diesel loading, including standby and short time loads, does not exceed the stated 95% of the continuous rating of the diesel generator in accordance with the guidance of RG 1.9.

08.03.01-***

As shown in various ABWR DCD 8.3 Figures, uninterruptible power supplies include rectifiers and inverters. Discuss the procedures that will be developed to address the periodic testing of these components.

Also, discuss the administrative controls that will be put in place to assure the proper control of the fuses used throughout the plant.

08.03.01-***

In FSAR subsection 8.3.4.4 it is stated that, “procedures include periodic testing and calibration of the protective devices (except for fuses which will be inspected) to demonstrate their functional capability for the safety-related circuits that pass through the containment electrical penetrations assemblies." GDC 50 requires that penetrations be designed to assure containment integrity. Containment integrity can be compromised by short circuits affecting non-safety related circuits within the containment during a design basis accident. Confirm whether the above procedures will also include periodic testing and calibration of protective devices associated with the non-safety related circuits that pass through the containment electrical penetration assemblies. If not, provide justification for the omission and assess potential safety consequences.

08.03.01-***

In FSAR subsection 8.3.4.30, Periodic Testing of Electrical Systems and Equipment, the applicant indicates that procedure will be developed for the periodic testing of electrical equipment in accordance with surveillance and test requirements of IEEE 308. Confirm that the electrical equipment, that will be periodically tested, include electrical isolation devices.

08.03.01-***

In FSAR subsection 9.5.13.8 (item 3), the applicant refers to subsection 8.3.4.2 for a discussion of diesel generator no-load or low-load operation. However, the referenced subsection does not address no-load or low-load operation. Clarify the statement and provide either an appropriate reference or discuss the issue in either subsection.

08.03.01-***

RAI 8.3.1-13: STP DEP T1 2.15-2 RBSRDG HVAC revises DCD Tier 1 Subsection 2.15.5 DG engine room maximum temperature limit during DG operation from 50°C to

60°C. Discuss the effect of temperature increase from 50°C to 60°C on (1) DG performance (DG rating, effects on electronic components associated DG control system, etc.), (2) Cable ampacity, (3) mild environment equipment qualification, and (4) operation of other equipment in the room if any.