From: Guzman, Richard
Sent: Tuesday, January 28, 2014 2:24 PM
To: timothy.brown@duke-energy.com
Subject: Oconee Protected Service Water - Follow-up Request for Additional Information related to OSC-9211

Categories: Followup

Tim,

As follow-up to our teleconference on 1/21/14, below are the additional RAI questions related to Calculation OSC-9211 for the subject License Amendment Review.
To support timely completion of the technical staff's review, we request a response to the questions by Feb 14, 2014. We are available this week to go over any clarifications to ensure your group fully understands the questions. Let me know if/when you'd like to have a call.

Thanks,

Rich Guzman
Sr. Project Manager
NRR/DORL/LPL1-1
US NRC
301-415-1030

==========

RAI-190 (EMCB-11)

Background:

- The Oconee UFSAR, Section 3.2.1.1.1 designates portions of the Auxiliary Building that house engineered safeguards systems, control room, fuel storage facilities and radioactive materials as Class 1 structure. Section 3.2.1.1.2 of the UFSAR designates Oconee Turbine and Auxiliary Buildings (except as included in Class 1) as Class 2 structures.
- Section 2.0 "Design Input" of Calculation OSC-9211 references Section 3.2.1.1 of the UFSAR and establishes that the exterior south wall of Unit 3 Auxiliary Building is classified as Class 1 structure.
- Section 4.1 "Load Combinations" of Calculation OSC-9211, references Table 3-23 of the UFSAR for design basis load conditions used in Calculation OSC-9211 for structural evaluation of the exterior south wall of Unit 3 Auxiliary Building. Table 3-23 is referenced in Section 3.8.4.5 of the UFSAR for the design of those portions of the Auxiliary Building housing the facilities listed in Section 3.8.4.1 of the UFSAR.
- Section 4.2 "Acceptance Criteria" of Calculation OSC-9211, references Section 20.2.3 of Specification OSS-0254.00-00-3007, Revision 4 "Design Basis Specification of the Auxiliary Building" for acceptance criteria for Class 1 reinforced concrete structures. Section 4.2 of Calculation OSC-9211 also references Section 3.8.5 of the UFSAR which is related to non-Class 1 structures and where a 33 percent increase, for wind and seismic load combinations, in allowable stress limits is allowed for the design of Class 2 structures.

Issue:

There is an apparent inconsistency in Section 4.2 of Calculation OSC-9211 where it is established that the exterior south wall of Unit 3 Auxiliary Building is classified as Class 1 and it is acknowledged that structural acceptance criteria for Class 1 structures will be used; but, in contrary, the UFSAR section related to non-Class 1 structures is referenced for use.

Request for Additional Information:

a. Provide further clarification related to the seismic classification and the structural acceptance criteria applicable to the exterior south wall of Unit 3 Auxiliary Building evaluated in Calculation OSC-9211.

b. Section 4.1 “Load Combinations” of Calculation OSC-9211, references Table 3-23 of the UFSAR for design basis load conditions used in Calculation OSC-9211 for structural evaluation of the exterior south wall of Unit 3 Auxiliary Building. Contrary to the UFSAR, Table 3-23, Calculation OSC-9211 excludes design basis earthquake from load combination LC1. Provide further clarification and reconcile the exclusion of design basis earthquake.

c. Static soil pressure and hydrostatic loads are permanent loading conditions for the exterior south wall of Unit 3 Auxiliary Building evaluated in Calculation OSC-9211. Provide further clarification and reconcile the exclusion of these loading conditions from Maximum Hypothetical Earthquake load combination LC3.

d. Calculation OSC-9211 considers self-weight of the wall, self-weight of floor slab at elevation 796’-6”, and self-weight of concrete masonry wall at elevation 796’-6”. It is also stated in Calculation OSC-9211 that loads from floors above elevation 796’-6” will be transferred through Auxiliary Building columns to the foundation. Confirm that equipment loading plus any other permanent loading, either attached directly to the south wall of Unit 3 Auxiliary Building or supported on the floor slab at Elevation 796’-6”, have been properly taken into account in Calculation OSC-9211.

e. As assumed in Calculation OSC-9211, the existing reinforcing bars have been cut/removed to construct the new opening. The Auxiliary Building design basis code of record, ACI 318-63, requires that the calculated tension or compression in any reinforcing bar at any section must be developed on each side of that section by proper embedment length, end anchorage, or hook. Provide further information and demonstrate that there is sufficient embedment length of reinforcing bars to develop the flexural moment demand, in the horizontal and vertical directions, in the areas adjacent to the new opening.

f. Provide further information and demonstrate that the flexural and shear capacity of concrete spanning the width of the new opening is adequate to resist the maximum flexural moment and shear force demand.

Thanks,

Rich Guzman
Sr. Project Manager
NRR/DORL
US NRC
301-415-1030
Richard.Guzman@nrc.gov