PMSTPCOL PEmails

From: Tai, Tom
Sent: Wednesday, July 29, 2009 4:39 PM
To: Price, John E
Cc: STPCOL; Mookhoek, William
Subject: Letter 169 - RAI 3220, 3283, and 3284
Attachments: LTR 169 ML0921003705.pdf

John,

Attached for your information is an advanced copy of Letter 169 transmitting RAI 3220, 3283, and 3284 for Chapters 3.3 and 3.7.

Regards

Tom Tai
DNRL/NRO
(301) 415-8484
Tom.Tai@NRC.GOV

Hearing Identifier: SouthTexas34Public_EX
Email Number: 1527

Mail Envelope Properties (C56E360E9D804F4B95BC673F886381E71FBC778A92)

Subject: Letter 169 - RAI 3220, 3283, and 3284
Sent Date: 7/29/2009 4:39:27 PM
Received Date: 7/29/2009 4:39:29 PM
From: Tai, Tom

Created By: Tom.Tai@nrc.gov

Recipients:
"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"Mookhoek, William" <wemookhoek@STPEGS.COM>
Tracking Status: None
"Price, John E" <jeprice@STPEGS.COM>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	229	7/29/2009 4:39:29 PM
LTR 169 ML0921003705.pdf	122790	

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

July 29, 2009

Mr. Scott Head, Manager
Regulatory Affairs
STP Nuclear Operating Company
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 169 RELATED TO SRP SECTIONS 03.07 AND 03.03 FOR THE SOUTH TEXAS PROJECT COMBINED LICENSE APPLICATION

Dear Mr. Head:

By letter dated September 20, 2007, STP Nuclear Operating Company (STP) submitted for approval a combined license application pursuant to 10 CFR Part 52. The U. S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within 30 days of the date of this letter. However, STP requested that 45 days are allowed to respond to RAI 3284. The Phase 2 schedule will be adjusted accordingly. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

If you have any questions or comments concerning this matter, I can be reached at 301-415-8484 or by e-mail at Tom.Tai@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Tom M. Tai, Senior Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 3283, 3284, and 3220

Enclosure:
Request for Additional Information

cc: William Mookhoek
John Price

If you have any questions or comments concerning this matter, I can be reached at 301-415-8484 or by e-mail at Tom.Tai@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Tom M. Tai, Senior Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 3283, 3284, and 3220

Enclosure:
Request for Additional Information

cc: William Mookhoek
John Price

Distribution:
PUBLIC
NGE 1/2 R/F
GWunder, NRO
BAbeywickrama, NRO
HCandra, NRO
MChakravorty, NRO
SChakrabarti, NRO
SKirkwood, OGC
RidsNroDeSeb2
RidsNroDnrlNge2
CCChappell@STPEGS.com
STP.COL@nrc.gov
wemookhoek@STPEGS.com

ADAMS Accession No. ML092100370 NRO-002

OFFICE	SEB2/TR	SEB2/BC	NGE2/PM	OGC	NGE2/L-PM
NAME	MChakravorty	SChakrabarti	TTai	SKirkwood	GWunder
DATE	7/02/09	7/16/09	7/20/09	7/24/09	7/24/09

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information No. 3220 Revision 2

7/28/2009

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 03.03.01 - Wind Loading
Application Section: 03.03.01

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

03.03.01-1

Question 12852

The supplement of Section 3.3.1.1 Design Wind Velocity of the STP 3 and 4 COL FSAR states that: "The 177 km/h for 50 year recurrence interval and 197 km/h for 100 year recurrence interval are based on Reference 3.3-1, which is "fastest mile". Per Reference 3.3-4 Table 1609.3.1, these correspond to a wind velocity (3 second gust) of 203 km/h with a recurrence interval of 50 years and 225 km/h with a recurrence interval of 100 years." Discuss and justify the applicant's rationale for asserting that the above quoted 177 km/h for 50 year recurrence interval and 197 km/h for 100 year recurrence interval pertain to the "fastest mile" basic wind velocities.

Also confirm that the equation used by STP 3 and 4 COLA FSAR in converting wind velocity (fastest mile) to wind velocity (3 second gust) is identical to Equation 16-34 listed in Section 1609.3.1 of the International Building Code (2006). The staff could not exactly verify the 3 second gust wind velocities of 203 km/h and 225 km/h reported in the applicant's supplement and needs additional clarification.

03.03.01-2

Question 12853

With respect to the information presented in Appendix 3H.6.2, discuss the technical basis for adopting a simplified approach, for the conceptual design of the UHS basin and the pump house of each unit, by applying the free-field peak ground motion acceleration of 0.15g in the two horizontal (N-S and E-W) directions and the vertical direction, ignoring the effects of seismic soil structure interaction (SSI). Discuss the basis for using a 10% amplification factor for the cooling towers and an acceleration of 0.165g applied in the three directions. Discuss how the Hydrodynamic effects of the water in the basin were considered. Also provide a detailed discussion describing how the so-called final seismic analysis of the UHS structure will comply with the applicable acceptance criteria of SRP Sections 3.7 and 3.8. Additionally, indicate the updating status of the FSAR in accordance with 10 CFR 50.71(e) which was tentatively scheduled to be submitted by the second quarter of 2009 for staff review.

03.03.01-3

Question 12855

With respect to the site-specific supplement related to COL License Information Item 3.1, the applicant states that, "The site-specific design basis wind does not exceed the design basis wind given in Table 2.0-1 of the reference ABWR DCD." Provide a justification including a comparative velocity data

to support the STP assertion that the site-specific design basis wind velocities do not exceed the design basis wind velocities given in Table 2.0-1 of the reference ABWR DCD.

03.03.01-4

Question 12856

With respect to the supplement listed in Section 3.3.3.3, provide more detailed discussion of the approaches and analyses to be used by STP to ensure that SSCs not designed for wind loads are analyzed and checked to ensure that their mode of failure will not affect the ability of safety-related SSCs to perform their intended safety functions. Also, discuss the codes and standards (e.g., ASCE-SEI 7-05) that will be used to ensure realization of an expected SSC performance outcome. The discussion should refer to pertinent SRP acceptance criteria or guidance that were relied upon in performing the analyses.

03.03.01-5

Question 12858

With respect to the site-specific supplement provided in STP 3 and 4 FSAR Section 3.3.3.3 to address COL license information item 3.3, the applicant has committed to design the remainder of SSCs based on an importance factor "I" of 1.11. ASCE 7-05, Chapter 6 Wind Loads, Table 6-1 specifies an importance factor of 1.15 for hurricane prone regions. The factor I=1.15 converts wind speed to a 100 year recurrence period, which is consistent with the design of Seismic Category I SSCs. As the proposed factor of 1.11 is not a part of ASCE 7-05, the Applicant is requested to justify the use of the importance factor of 1.11 instead of 1.15. In addition, the Applicant is also requested to specify the remaining parameters of the basic wind equation used to determine the building wind loads.

03.03.01-6

Question 12859

STP Units 3 and 4 COLA FSAR, Tier 2, Section 2.3S.1.3.3 does not explicitly discuss the hurricane wind speeds. The 100 year return period value required per SRP Section 2.3 is presumed to include hurricane wind speed. According to the data described in Section 2.3S.1.3.3 (FSAR), there have been 5 hurricanes of Category 4 and 5 in 155 years in the site region. General Design Criteria 2 of 10CFR 50 Appendix A requires the Applicant to consider the effects of the most severe of the natural phenomena historically reported. Please justify that the basic wind velocity interpolated from ASCE 7-05, Figure 6-1A in fact covers the most severe hurricanes historically reported.

03.03.01-7

Question 13159

In COLA FSAR/Tier 2, Revision 2, Sections 2.3S.1.3.1 and 3.3.1, the Applicant has provided the procedures and parameters of wind design. Wind parameters are given for 50 and 100 years Mean Recurrence Intervals (MRI). According to SRP 2.3.1, Section II Acceptance Criteria, SRP Acceptance Criteria 4, the Seismic Category I structures shall be designed to withstand the 100 year return period 3-second gust wind speed. Therefore, the Applicant is requested to confirm that the site-specific

Seismic Category I SSCs including the UHS structure will be designed to withstand the 100 year MRI 3-second gust winds.

03.03.01-8

Question 13160

With respect to the supplement provided in Section 3.3.1.2 of the STP 3 and 4 FSAR related to the applied forces and the procedures used to determine the wind loading on the UHS structure, since ASCE/SEI 7-05 (SRP Section 3.3.1 SRP Acceptance Criteria) changed the definition of Exposure D compared to ASCE 7-1990 (Reference 3.3-1 in ABWR DCD), please ensure that the correct exposure coefficient is used for STP site-specific structures including the UHS structure. As exposure D is more representative of STP site conditions, justify if another exposure (not D) is used to determine the wind loads.

Request for Additional Information No. 3283 Revision 2

7/28/2009

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 03.07.01 - Seismic Design Parameters
Application Section: 03.07.01

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

03.07.01-14

Question 13029:

The STP FSAR Section 2.5S.4.5.2.4 states that a reinforced concrete (RC) retaining wall will be constructed on the east side of the Reactor Buildings and Turbine Buildings (TB) to facilitate the excavation activities and accommodate the reach of heavy lift crane. The walls will vary in exposed height to a maximum of 90 ft. The area on the west side of the retaining walls will be backfilled as construction progresses and the walls will be abandoned in place.

As such, the applicant is requested to describe in the FSAR how is this retaining wall explicitly included in the SSI modeling and analysis of the Reactor Building and Control Building and if not, what is the justification for not considering them and what would be the impact of this on the seismic response of these structures.

Request for Additional Information No. 3284 Revision 2

7/28/2009

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 03.07.02 - Seismic System Analysis
Application Section: 03.07.02

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

03.07.02-11

Question 13031:

The ABWR DCD/Tier 2 shows the Radwaste Buildings (RWB) located on the west side of the Control Buildings (CB) with the south edge of the RWB aligned with the north edge of the Reactor Buildings (RB) (Figure 1.2-1). However, this configuration has changed in the STP 3 and 4 sites where the RWB is relocated immediately west of the RB. Because of the proximity of Reactor Building (RB) to the RWB, the seismic demand/response of RWB may be affected due to structure-to-structure interaction effect. As such, the applicant is requested to address whether the effects of structure-to-structure interaction are considered in establishing the acceleration level at the foundation of the RWB during an SSE event and, if not, what is the justification for not including them and what impact could this have on the seismic interaction evaluation of RWB?

03.07.02-12

Question 13034:

The STP FSAR Section 3H.6.6.2.1 states that a static analysis will be performed on the finite element model described in Section 3H.6.5.2.3 that will consider:

"Dynamic lateral soil pressures on the walls of the UHS basin and RSW pump houses due to an SSE, calculated using the methodology defined in Subsection 3.5.3.2.2 of ASCE 4."

The applicant is requested to provide the dynamic lateral soil pressures on the exterior walls below grade calculated from the SSI analysis using SASSI for comparison with those of ASCE 4 to ensure that the inertial interaction effect of the structure on the exterior walls is adequately accounted for in the wall design.