From: "Gibson, Gregory T" <gtgibson@STPEGS.COM>
To: "George Wunder" <GFW@nrc.gov>
Date: 12/5/2007 4:21:35 PM
Subject: Ground motion response
cc: <sfrantz@morganlewis.com>,"Daniel Stillwell" <dwstillwell@STPEGS.COM>,"William Mookhoek" <wemookhoek@STPEGS.COM>

George,

Bill Stillwell had just finished this as we were talking. We would appreciate the opportunity to discuss with yourself and the staff, anytime tomorrow or Friday. Please let us know and we will use the STP bridge (866-517-8685).

Again, the discussion points would be:

*
The site parameters in Tier 1 are "bounding" and do (do not) require a departure for any lower value... i.e., if a site is a 0.27g site and the DCD lists 0.3 is that a departure? This would also apply to all site parameters (wind speed, precipitation, etc.) - i.e., is a departure required unless the site exactly matches up?
*
The non-reactor buildings (which is required to be 0.3g) such as the rad-waste building (nonSR), can (can not) be a Tier 2 departure?

The attachment provides the question(s), our answer(s), and some additional material from the FSER and DCD...

Thanks,

Greg Gibson
Manager, Regulatory Affairs
South Texas Project, Units 3 &4
Tel: 361-972-4626
Cell: 979-665-2400
BlackBerry: 361-403-4143

From: Stillwell, Daniel
Sent: Wednesday, December 05, 2007 2:38 PM

To: Gibson, Gregory T
Subject: Revised ground motion response

Greg,

Please see the attached.

DW (Bill) Stillwell

Supervisor, PRA

STP Units 3 & 4

(361) 972-7581

[cell] (979) 240-6867

Hearing Identifier: SouthTexas34Public
Email Number: 4

Mail Envelope Properties (4757D842.HQGWDO01.TWGWPO02.200.2000005.1.24ED1E.1)

Subject: Ground motion response
Creation Date: 12/5/2007 4:21:35 PM
From: "Gibson, Gregory T" <gtgibson@STPEGS.COM>

Created By: gtgibson@STPEGS.COM

Recipients
<sfrantz@morganlewis.com>
"Daniel Stillwell" <dwstillwell@STPEGS.COM>
"William Mookhoek" <wemookhoek@STPEGS.COM>
"George Wunder" <GFW@nrc.gov>

Post Office	Route
TWGWPO02.HQGWDO01	nrc.gov

Files	Size	Date & Time
MESSAGE	1422	12/5/2007 4:21:35 PM
TEXT.htm	5946	12/6/2007 11:08:50 AM
Issue 4(c).doc	36864	12/6/2007 11:08:50 AM
Mime.822	60607	12/6/2007 11:08:50 AM

Options
Priority: High
Reply Requested: No
Return Notification: None
None

Concealed Subject: No
Security: Standard

George,

Bill Stillwell had just finished this as we were talking. We would appreciate the opportunity to discuss with yourself and the staff, anytime tomorrow or Friday. Please let us know and we will use the STP bridge (866-517-8685).

Again, the discussion points would be:

- The site parameters in Tier 1 are "bounding" and do (do not) require a departure for any lower value... i.e., if a site is a 0.27g site and the DCD lists 0.3 is that a departure? This would also apply to all site parameters (wind speed, precipitation, etc.) - i.e., is a departure required unless the site exactly matches up?
- The non-reactor buildings (which is required to be 0.3g) such as the rad-waste building (nonSR), can (can not) be a Tier 2 departure?

The attachment provides the question(s), our answer(s), and some additional material from the FSER and DCD...

Thanks,

Greg Gibson

Manager, Regulatory Affairs
South Texas Project, Units 3 &4
Tel: 361-972-4626
Cell: 979-665-2400
BlackBerry: 361-403-4143

From: Stillwell, Daniel
Sent: Wednesday, December 05, 2007 2:38 PM
To: Gibson, Gregory T
Subject: Revised ground motion response

Greg,

Please see the attached.

DW (Bill) Stillwell
Supervisor, PRA
STP Units 3 & 4
(361) 972-7581
[cell] (979) 240-6867

Issue 4

"Structural: The staff found the following potential Tier 1 changes. These changes were not identified in the COL application, nor were exemptions sought under 10 CFR 52.63(b)(1).

c. "the peak ground acceleration for the Radwaste building design changed from the required value of 0.3 g to 0.15 g."

Response:

STPNOC does not believe that the change 0.3g to 0.15g for the Radwaste Building represents a change to Tier 1. Instead, the departure represents a change to Tier 2.

The values in questions are contained in the site parameters located in Section 5 of Tier 1. As defined in 10 CFR 52.1, "Site parameters are the postulated physical, environmental and demographic features of an assumed site." As stated in 10 CFR 52.79(d)(1), a COL application must "demonstrate that the site characteristics fall within the site parameters specified in the design certification." Thus, the purpose of the Tier 1 site parameters is to ensure that the site characteristics are bounded by the site parameters. In the case of STP, FSAR Table 2.0-2 demonstrates that the STP site characteristics comply with the Tier 1 site parameters (except for certain parameters that are not associated with this NRC issue). Therefore, with respect to the issues identified by the NRC, the STP site does not depart from the Tier 1 site parameters.

In contrast with the site parameters in Section 5 of Tier 1, the certified design descriptions for structures, systems, and components are located in Section 2 of Tier 1. The certified design descriptions do not reference the site parameters in Section 5. Instead, the certified design descriptions for the Reactor Building and Radwaste Building in Sections 2.15.10 and 2.15.13 of Tier 1 simply state that the buildings are "are designed and constructed to accommodate the dynamic and static loading conditions associated with the various loads and load combinations which form the structural design basis," without specifying any particular values for the structural design basis. The values for the various loads and load combinations are located in Tier 2, e.g., Sections 3.8.4.3, 3H.1.4.2, and 3H.3.4.2. Thus, to the extent that the FSAR changes structural design basis values, those changes pertain to Tier 2, not to the certified design descriptions for the Reactor Building and Radwaste Building in Sections 2.15.10 and 2.15.13 of Tier 1.

Additional Material

This section presents additional citations from the FSER, NUREG-1503, and the GE design documents in support of the Tier 2 change for the radwaste building design.

FSER, NUREG-1503

2.6.3 "*Vibratory Ground Motion: "GE specifies the 0.3g peak ground acceleration (pga) value for the high frequency anchor for the SSE response spectra….Although the SSE PGA of 0.3g anchoring RG 1.160 design response spectra could generally be considered an adequate envelope for many sites in the Central and Eastern United States, the NRC staff knows that localized seismic activity exceeding this envelope cannot be rules out categorically. Therefore the staff will require that site-specific geological, geotechnical, and seismological factors be reviewed for each application to ensure that no site-specific seismic hazard will cause the RG 1.160 spectrum anchored to 0.3g to be exceeded.*" The STP Unit 3&4 site does not exceed the SSE design spectra anchored to 0.3g.

2.5.2, "*… the COL applicant will develop site-specific geological, seismological, and geo technical data and compare the site-specific SSE ground response spectra with the design response spectra of SSAR Section 2.3.1.2.*"

2.5.4, ""*.. the COL applicant should develop and submit to the NRC site-specific geotechnical data to demonstrate that they are comparable to the design assumptions…..the COL applicant will provide information concerning the properties and stability of site-specific soil and rocks under both static and dynamic conditions including the vibratory ground motions associated with the site-specific SSE.*"

2.5.4.8, "*the COL applicant should establish and document site-specific geotechnical properties to demonstrate that they are comparable to the conditions used for the seismic design envelope discussed in Section 3.7.2 of this report (FSER)." "These strain-dependent properties will be used in determining the site-specific SSE ground motion.*"

3.1.1.4, *Use of Regulatory Guides 1.143 and 1.27, "With the elimination of the OBE, GE committed to designing these structures and features to withstand the SSE…The staff finds that designing these structures and features to the SSE provides a bounding design comparable to that recommended in the regulatory guides and is acceptable.*"

3.7, *Bounding Site Parameters, "The site-specific ground motion response spectra are bounded b the RG 1.60 design response spectra anchored to 0.3g.*"

3.7, *"Certain site-specific SSCs for ABWR plants that are not part of the certified design may be designed using site-specific criteria….Both the horizontal and vertical design response spectra for the ABWR certified design and the RG 1.60 shapes anchored to 0.3g peak ground accelerations should be scaled throughout their entire frequency range in such a manner that the minimum spectral amplitudes if the certified design spectra are equal to the maximum*

amplitudes of the horizontal and vertical site-specific ground motion spectra, respectively, in the 5- to 10-Hertz frequency range."

3.7.2, Radwaste Building, "*...GE indicated that the radwaste building does not house any safety-related equipment and components and hence, there is no need to generate FRS for the subsystems…GE elected to analyze the radwaste building by the response spectra method and to design the radwaste building structure for the SSE seismic loads.*"

3.8.4, Other Seismic Category I structures, "*Because GE elected to design the radwaste building substructure to remain structurally intact during an SSE to help contain liquid from a possibly ruptured tank, the radwaste building substructure is also included in this safety evaluation, although it does not house any safety-related systems and components, and hence, is not seismic Category I.*"

Design Documents

Tier 2, Appendix A Seismic Soil Structure Interaction Analysis presents the soil-structure interaction analysis for the reactor building and control building complex of the standard plant for a 0.3g safe shutdown excitation. The analysis used generic site conditions and did not include the radwaste building.