



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

September 20, 2010
U7-C-STP-NRC-100212

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Response to Request for Additional Information

Attached is an STP Nuclear Operating Company (STPNOC) supplemental response to Request for Additional Information (RAI) question 02.05.02-28, related to Combined License Application (COLA) Part 2, Tier 2, Section 2.5S, "Geology, Seismology, and Geotechnical Engineering." This supplemental response corrects a minor discrepancy in FSAR Subsection 2.5S.2 and the previous responses to RAI question 02.05.02-28. This minor discrepancy is related to the M_{max} distribution used for the Bechtel Earth Science Team Gulf Coast Source Zone BZ1. The response to RAI question 02.05.02-28 was provided in STPNOC Letter U7-C-STP-NRC-100057 (ML100770389), dated March 15, 2010, and a supplemental response was provided in STPNOC Letter U7-C-STP-NRC-100128 (ML101650101), dated June 10, 2010. Attachment 1 provides the response to the RAI question listed below:

02.05.02-28, Supplement 2

When a change to the COLA is required, it will be incorporated into the next routine revision of the COLA following NRC acceptance of the RAI response.

There are no commitments in this letter.

If you have any questions, please contact Scott Head at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

DOPI
NRO

STI 32751860

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 9/20/10



Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

rhb

Attachment: RAI 02.05.02-28, Supplement 2

cc: w/o attachments and enclosure except*
(paper copy)

Director, Office of New Reactors
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Kathy C. Perkins, RN, MBA
Assistant Commissioner
Division for Regulatory Services
Texas Department of State Health Services
P. O. Box 149347
Austin, Texas 78714-9347

Alice Hamilton Rogers, P.E.
Inspection Unit Manager
Texas Department of State Health Services
P. O. Box 149347
Austin, Texas 78714-9347

*Steven P. Frantz, Esquire
A. H. Gutterman, Esquire
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave. NW
Washington D.C. 20004

*Tekia Govan
Two White Flint North
11545 Rockville Pike
Rockville, MD 20852

(electronic copy)

*George F. Wunder
*Tekia Govan
Loren R. Plisco
U. S. Nuclear Regulatory Commission

Steve Winn
Joseph Kiwak
Eli Smith
Nuclear Innovation North America

Peter G. Nemeth
Crain, Caton & James, P.C.

Richard Peña
Kevin Pollo
L. D. Blaylock
CPS Energy

RAI 02.05.02-28, Supplement 2**SUPPLEMENTAL QUESTION:**

This supplemental response to RAI 02.05.02-28 is being provided to address a minor discrepancy identified in the M_{max} distribution used for the Bechtel Earth Science Team (EST) Gulf Coast Source Zone (GCSZ) BZ1 in the STP 3 & 4 COLA.

RESPONSE:

As part of the review of the maximum magnitude (M_{max}) distribution used to revise the EPRI-SOG Gulf Coastal Source Zones (GCSZs) for the STP 3 & 4 COLA, a minor discrepancy was identified in the M_{max} distribution used for the Bechtel Earth Science Team (EST) Gulf Coast Source Zone (GCSZ) BZ1. The distribution reported in the STP 3 & 4 COLA for BZ1 based on an initial interpretation was 6.1, 6.4 and 6.6 with weights of 0.1, 0.4 and 0.5, respectively. The correct updated distribution that should have been presented is 6.1, 6.4 and 6.6, and 6.7 with weights of 0.1, 0.4, 0.1 and 0.4, respectively. A sensitivity study has been performed showing that the effect of adopting the correct BZ1 M_{max} distribution would result in increases of 0.1% or less in ground motion design response spectrum values over those based on the initial updated M_{max} distribution. Based on these results, it is concluded that this increase is insignificant, and that the design ground motions derived from the spectra in FSAR Tables 2.5S.2-19 and 2.5S.2-20 remain appropriate for the STP site.

The following COLA markup to FSAR Subsection 2.5S.2.4.3.1 and Table 2.5S.2.13 is being provided as a supplemental response to RAI 02.05.02-28 (STP Letter U7-C-STP-NRC-100057 (ML100770389) dated March 15, 2010), to reflect the correct updated distribution for Zone BZ1 and a description of the sensitivity analysis performed.

The second and third paragraphs of FSAR Subsection 2.5S.2.4.3.1 and the first row of Table 2.5S.2.13 are being revised as shown below:

The updated M_{max} values of 6.1, 6.4, and 6.6 with weightings of 0.1, 0.4, and 0.5 used here (Table 2.5S.2.13) follow from the Bechtel Group's methodology for defining M_{max} distributions is described within their EST volume as follows (Reference 2.5S.2-13):

- The lower bound magnitude of the distribution is defined as the greater of either the largest observed earthquake magnitude within the zone, or m_b 5.4
- The next higher magnitude is 0.3 magnitude units greater than the minimum
- The third magnitude is 0.6 magnitude units above the minimum
- The fourth magnitude, and upper bound of the distribution, is m_b 6.6 interpreted as the largest intraplate earthquake in the CEUS with specific exceptions
- The weightings on the four M_{max} values are 0.1, 0.4, 0.4, and 0.1, assigned consecutively from the minimum M_{max} value, respectively

If these guidelines result in an upper bound magnitude or magnitudes greater than m_b 6.6, then the upper M_{\max} distribution is truncated at m_b 6.6, and all weightings for magnitudes greater than or equal to 6.6 summed and collapsed onto the magnitude 6.6 upper bound. Applying this methodology to account for the Emb 6.1 earthquake results in updated M_{\max} values of 6.1, 6.4, 6.6, and 6.7 with weights of 0.1, 0.4, 0.1, and 0.4, respectively, for zone BZ1 (Table 2.5S.2-13).

It is noted, however, that a different initial interpretation of the Bechtel methodology was used in the development of the rock UHRS shown in Tables 2.5S.2-19 and 2.5S.2-20. The resultant M_{\max} distribution and weights for BZ1 based on this interpretation was 6.1, 6.4 and 6.6 with weights of 0.1, 0.4 and 0.5, respectively. A sensitivity study has been performed showing that the effect of adopting the updated BZ1 M_{\max} distribution shown in Table 2.5S.2-13 would result in increases of 0.1% or less in ground motion design response spectrum values over those based on the initial updated M_{\max} distribution. Based on these results, it is concluded that this increase is insignificant, and that the design ground motions derived from the spectra in Tables 2.5S.2-19 and 2.5S.2-20 remain appropriate for the STP site.

Table 2.5S.2-13 Comparison of EPRI EST Characterizations of Gulf of Mexico Coastal Source Zones and Modifications for STP 3 & 4

EPRI EST	Source	Description	EPRI Model		Updated Model for STP 3 & 4	
			M_{max} (m_b) and Wts. [1]	Contributes to 99% of Hazard [2]	M_{max} (m_b) and Wts [3]	Smoothing Options and Wts. [4]
Bechtel Group	BZ1	Gulf Coast	5.4 [0.1] 5.7 [0.4] 6.0 [0.4] 6.6 [0.1]	Yes	6.1 [0.10] 6.4 [0.40] 6.6 [0.5 0.10] 6.7 [0.40]	No Update
Dames & Moore	20	South Coastal Margin	5.3 [0.8] 7.2 [0.2]	Yes	5.5 [0.80] 7.2 [0.20]	I (0.2) II (0.4) III (0.4)
Law Engineering	126	South Coastal Block	4.6 [0.9] 4.9 [0.1]	Yes	5.5 [0.90] 5.7 [0.10]	No Update
Rondout Associates	51	Gulf Coast to Bahamas Fracture Zone	4.8 [0.2] 5.5 [0.6] 5.8 [0.2]	Yes	6.1 [0.30] 6.3 [0.55] 6.5 [0.15]	No Update
Weston Geophysical Corporation	107	Gulf Coast	5.4 [0.71] 6.0 [0.29]	Yes	6.6 [0.89] 7.2 [0.11]	No Update
Woodward-Clyde Consultants	B43	Central US Backgrounds	4.9 [0.17] 5.4 [0.28] 5.8 [0.27] 6.5 [0.28]	Yes	No Update	No Update

[1] M_{max} distribution and weights from EPRI 1986 model (EPRI, Reference 2.5S.2-16)

[2] Whether or not the source contributes to 99% of the hazard at STP 3 & 4

[3] Updated M_{max} distributions and weights as described in Subsection 2.5S.2.6.2

[4] Updated smoothing options and weights as described in Subsection 2.5S.2.6.2.7.1

I: Constant a, constant b, strong prior on b of 1.04

II: Medium smoothing on a, medium smoothing on b, strong prior on b of 1.04

III: high smoothing on a, high smoothing on b, strong prior on b of 1.04