Nuclear Operating Company

South Texas Project Electric Generating Station 4000 Avenue F – Suite A Bay City, Texas 77414

May 4, 2010
U7-C-STP-NRC-100103

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

Reference: 1. Request for Additional Information Letter No. 397 Related to SRP Section 19 for the South Texas Project Combined License Application, dated April 7, 2010.
2. Letter, Mark McBurnett to Document Control Desk, "Response to Request for Additional Information," dated January 14, 2010, U7-C-STP-NRC-100017 (ML100190245).

The attachments to this letter provide the responses to Request for Additional Information (RAI) items in the letter listed in reference 1 above.

19-31 19-32

There are no new commitments in this letter. Commitment 19.9-4 is revised to include the update to the seismic model based on site-specific soil effects described in the RAI response. Commitment 19.9-16 is revised to provide additional detail related to the demonstration of acceptable performance of containment isolation valves under containment severe accident conditions.

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

D091
NRO

STI 32671432

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

Executed on 5/4/10

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

dws

Attachment:

1. RAI 19-31 Response
2. RAI 19-32 Response
3. Summary of Commitment COM 19.9-4
4. Summary of Commitment COM 19.9-16

cc: w/o attachment except*

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RAI 19-31

QUESTION:

In accordance with the ABWR DCD COL License Information Item 19.9.4, the applicant is required to evaluate the HCLPF capacities of standard plant and site-specific SSCs for updating the PRA. The staff requests that the applicant confirm that this COL License Information Item includes an update of the system model (seismic accident sequences) developed in DCD to incorporate capacity reductions due to site-specific effects (soil liquefaction, slope failure, etc.) and site-specific SSC (Ultimate Heat Sink (UHS), Service Water System (RSW) including Pumphouse, Cooling Tower and Water Reservoir), and determines whether site-specific soil failures control the seismic HCLPF capacities of SSCs associated with the seismic accident sequences. Based on the result of the update, the applicant is requested to demonstrate the sequence- and plant-level seismic HCLPF capacity. The staff needs this information to ensure that the STP's PRA-Based Seismic Margin Analysis complies with pertinent requirements of 10 CFR 52.79(a)(46) and 10 CFR 52.79(d)(1).

RESPONSE:

As stated in the RAI, the system model (seismic accident sequences) developed in the DCD will be updated to incorporate capacity reductions due to site-specific effects (soil liquefaction) and site-specific SSCs (Ultimate Heat Sink (UHS), including Reactor Service Water (RSW) Pumphouse, Cooling Tower, RSW Piping Tunnel, and Diesel Generator Oil Storage Vault. Then, it will be determined whether site-specific soil failures control the seismic HCLPF capacities of SSCs associated with the seismic accident sequences. Based on the result of the update, the sequence- and plant-level seismic HCLPF capacity will be determined.

The revision proposed for COLA Section 19.9.4 in the revised response to RAI 19-29 (letter U7-C-STP-NRC-100076, dated April 5, 2010) will be replaced with the following COLA revision as a result of this response. The only change is to add the action provided in the above response in Item 4.

For Action 2 of Section 19.9.4, as shown below, the results of the HCLPF evaluation will be provided in a supplemental response to this RAI upon completion.

19.9.4 Confirmation of Seismic Capacities Beyond the Plant Design Basis

The following standard supplement addresses COL License Information Item 19.4.

~~The seismic capacity analysis will be completed prior to fuel loading and the PRA will be updated in accordance with 10 CFR 50.71(h)(1). (COM 19.9-4)~~

The following actions will be taken (COM 19.9-4) and the FSAR updated in accordance with 10 CFR 50.71(e) based upon the results of these analyses:

1. The High-Confidence Low Probability of Failure (HCLPF) values for the important plant-specific/as-built components corresponding to the generic components defined in Subsection 19H.4.3 shall be determined. The values will be compared to the assumed HCLPF values given in Tables 19H-1 or 19I-1. This will be completed prior to fuel load.

2. HCLPF values for site-specific SSCs (UHS/Pump House structure, Cooling Tower, RSW Piping Tunnel, and Diesel Generator Oil Storage Vault) whose failure may affect the plant response to seismic events and which are not included in the analyses described in Appendix 19H will be established. This will be completed by September 2010 and included in the COLA at the next scheduled update in accordance with 10 CFR 50.71(e) to incorporate these HCLPF values into Appendix 19H.

3. The investigation for the potential for seismic induced soil failure at 1.67 times the site-specific SSE will be completed prior to fuel load.

4. The system model (seismic accident sequences) developed in the DCD will be updated to incorporate capacity reductions due to site-specific effects (soil liquefaction) and site-specific SSCs (Ultimate Heat Sink (UHS), including Reactor Service Water (RSW) Pumphouse, Cooling Tower, RSW Piping Tunnel, and Diesel Generator Oil Storage Vault). Then, it will be determined whether site-specific soil failures control the seismic HCLPF capacities of SSCs associated with the seismic accident sequences. Based on the result of the update, the sequence- and plant-level seismic HCLPF capacity will be determined. This activity will be completed prior to the fuel load.

5. The remainder of the actions specified in Appendix 19H.5 will be completed prior to fuel load.

RAI 19-32

QUESTION:

ABWR DCD Tier 2 Section 19.9.17, "Capability of Containment Isolation Valves," specifies that the COL applicant will demonstrate that the stresses of the containment isolation valves, when subjected to severe accident loadings of 0.77 MPa internal pressure and 260 C temperature in combination with dead loads, do not exceed ASME Section III service level C limits. The DCD also specifies that the ultimate pressure capability at 260 C will be shown to be at least 1.03 MPa. In STP FSAR Section 19.9.17 of the same title, STP states in response to COL License Information Item 19.17 that the stresses of the containment isolation valves will be demonstrated not to exceed ASME Section III service level C limits, and the ultimate pressure capability of the containment isolation valves will be demonstrated to be greater than 1.03 MPa prior to fuel loading. STP also references Commitment COM 19.9-16 and indicates that the FSAR will be updated in accordance with 10 CFR 50.71(e) based upon the results of this analysis. The NRC staff requests that STP modify its response to COL License Information Item 19.17 to address the provision in the ABWR DCD that the "COL applicant" demonstrate the capability of the containment isolation valves. RG 1.206 Section C.III.4.3 suggests that the applicant justify why the item has not been resolved. For example, STP should discuss the implementation of the design process for the containment isolation valves following licensing in accordance with the methodology described in ABWR DCD Tier 2 Section 3.9, as incorporated by reference in the STP FSAR with departures and supplemental information, to ensure that applicable stress limits and pressure capabilities for the containment isolation valves are satisfied. In addition to calling out the commitment, STP should also discuss the applicable ITAAC that will confirm the completion of the design process for the demonstration of the capability of the containment isolation valves.

REVISED RESPONSE:

Consistent with the staff requests, FSAR Section 19.9.17 will be revised as shown below to address the design process for containment isolation valves and discuss the associated ITAAC.

19.9.17 Capability of Containment Isolation Valves

The following standard supplement addresses COL License Information Item 19.17.

Containment isolation valves are qualified by testing and analysis and by satisfying the stress and deformation criteria at the critical locations within valves. Operability is assured by meeting the requirements of the programs defined in Subsection 3.9.3.2, Pump and Valve Operability Assurance, and Subsection 3.9.6, Testing of Pumps and Valves, as supplemented in RAI 03.09.06-1, and Sections 3.10 and 3.11.

For containment isolation valves, the ASME Code Certified Stress Report will demonstrate that the stresses of containment isolation valves, when subjected to the severe accident loadings of 0.77 MPa internal pressure and 260 °C (500 °F) in combination with dead loads, do not exceed ASME Section III Service Level C limits. The individual parts of each valve will be verified not to exceed allowable structural capability limits under these severe accident conditions. In addition, the ASME Code Certified Stress Report will demonstrate the ultimate pressure capacity at 260 °C (500 °F) to be at least 1.03 MPa.

Acceptance Criteria for ITAAC 2.14.1.2 confirms the existence of an ASME Code Certified Stress Report for the containment pressure boundary components. The containment isolation valves are considered pressure boundary components, and are included in the separate ASME Code Certified Stress Reports. The Certified Stress Reports for the containment isolation valves will include the stress analysis for the severe accident conditions of 0.77 MPa and 260 °C (500 °F).

~~The stresses of the containment isolation valves will be demonstrated not to exceed ASME Section III service level C limits, and the ultimate pressure capability of the containment isolation valves will be demonstrated to be greater than 1.03 Mpa.~~ These actions will be completed prior to fuel loading. (COM 19.9-16) The FSAR will be updated in accordance with 10 CFR 50.71(e) based upon the results of this analysis.

COM 19.9-4

Commitment	Description	Completion Date
COM 19.9-4 CR 07-14004 Action 1	The High-Confidence Low Probability of Failure (HCLPF) values for the important plant-specific/as-built components corresponding to the generic components defined in Subsection 19H.4.3 shall be determined. The values will be compared to the assumed HCLPF values given in Tables 19H-1 or 19I-1.	Prior to fuel load
COM 19.9-4 CR 07-14004 Action 2	HCLPF values for site-specific SSCs (UHS/Pump House structure, Cooling Tower, and Diesel Generator Oil Storage Vault) whose failure may affect the plant response to seismic events and which are not included in the analyses described in Appendix 19H will be established.	September 2010
COM 19.9-4 CR 07-14004 Action 3	The investigation for the potential for seismic induced soil failure at 1.67 times the site-specific SSE.	Prior to fuel load
COM 19.9-4 CR 07-14004 Action 5	The system model (seismic accident sequences) developed in the DCD will be updated to incorporate capacity reductions due to site-specific effects (soil liquefaction) and site-specific SSCs (Ultimate Heat Sink (UHS), including Reactor Service Water (RSW) Pumphouse, Cooling Tower, RSW Piping Tunnel, and Diesel Generator Oil Storage Vault). Then, it will be determined whether site-specific soil failures control the seismic HCLPF capacities of SSCs associated with the seismic accident sequences. Based on the result of the update, the sequence- and plant-level seismic HCLPF capacity will be determined.	Prior to fuel load
COM 19.9-4 CR 07-14004 Action 4	The remainder of the actions specified in Appendix 19H.5.	Prior to fuel load

COM 19.9-4

Commitment	Description	Completion Date
COM 19.9-16 CR 07-14082 Action 1	For containment isolation valves, the ASME Code Certified Stress Report will demonstrate that the stresses of containment isolation valves, when subjected to the severe accident loadings of 0.77 MPa internal pressure and 260 °C (500 °F) in combination with dead loads, do not exceed ASME Section III Service Level C limits. The individual parts of each valve will be verified not to exceed allowable structural capability limits under these severe accident conditions. In addition, the ASME Code Certified Stress Report will demonstrate the ultimate pressure capacity at 260 °C (500 °F) to be at least 1.03 MPa. Acceptance Criteria for ITAAC 2.14.1.2 confirms the existence of an ASME Code Certified Stress Report for the containment pressure boundary components. The containment isolation valves are considered pressure boundary components, and are included in the separate ASME Code Certified Stress Reports. The Certified Stress Reports for the containment isolation valves will include the stress analysis for the severe accident conditions of 0.77 MPa and 260 °C (500 °F). The FSAR will be updated in accordance with 10 CFR 50.71(e) based upon the results of this analysis.	Prior to fuel load