

January 4, 2010

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 240 RELATED TO
THE SRP SECTION 17.4 FOR THE SOUTH TEXAS COMBINED LICENSE
APPLICATION

Dear Mr. Head:

By letter dated September 20, 2007, South Texas Project Nuclear Operating Company (STPNOC) 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. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

Mr. Scott Head

-2-

If you have any questions or comments concerning this matter, you may contact me at 301-415-1146 or Raj.Anand@nrc.gov, or you may contact George Wunder at 301-415-1494 or George.wunder@nrc.gov.

Sincerely,

/RA/

Raj Anand, Project Manager
ESBWR/ABWR Projects Branch 2
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013
eRAI Tracking No: 3998

Enclosure:
Request for Additional Information

cc: William Mookhoek

Mr. Scott Head

-2-

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Raj Anand, Project Manager
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Enclosure:
Request for Additional Information

cc: William Mookhoek

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DATE	11/11/09	11/19/09	1/4/10	12/18/09

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 3998

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 17.04 - Reliability Assurance Program (RAP)
Application Section: 17.3 and 17.4S Reliability Assurance Program**

QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 1 (AP1000/EPR Projects) (SPLA)

17.04-9

The staff requested in RAI 17.04-1 that STP include in Section 19K of the STP FSAR the specific SSCs that are in scope of the RAP associated with the risk-significant common cause failures (CCFs) of the HPCF, RHR, RBCW, and RSW systems. In response to RAI 17.04-1, STP proposed to include in FSAR Section 19K those SSCs of the HPCF, RHR, RBCW, and RSW systems whose CCFs are significant contributors to system unavailability or core damage frequency (CDF), which are identified in the ABWR Standard Safety Analysis Report (SSAR), Section 19D.8.6. As explained below, the staff found that the SSCs of the HPCF, RHR, RBCW, and RSW systems that STP proposed to add to the scope of RAP as a result of CCFs may not be complete.

Based on Section 19D.8.6 of the ABWR SSAR, the following SSCs are considered in the CCF sensitivity analysis for the HPCF, RHR, RBCW, and RSW systems: pumps, pump auxiliary equipment, manual valves, motor-operated valves, check valves, room air conditioners, spargers, strainers, circuit breakers, flow transmitters, heat exchangers, and temperature elements. Section 19D.8.6 of the ABWR SSAR also identified the most significant CCF contributors to system unavailability or CDF for these systems (e.g., pumps, strainers, room air conditioners). It should be noted, however, that those SSCs whose CCFs are not significant contributors to system unavailability or CDF can still be risk important (i.e., the CCFs of these SSCs can have a high risk achievement worth (RAW) or Fussell Vesely (FV)), and, therefore, should be evaluated for inclusion in the scope of RAP. For example, based on the discussion in Section 19D.8.6 of the ABWR SSAR, CCF of the HPCF pumps is a significant contributor to system unavailability or CDF and has a high risk importance according to Table 19K-1 of the STP FSAR. While CCF of the HPCF check valves may not be a significant contributor to system unavailability or CDF, its CCF risk importance (e.g., RAW) would be very similar to that of the HPCF pumps, and, therefore, should be include in the scope of RAP.

Since Section 19D.8.6 of the ABWR SSAR addresses CCF of numerous SSCs for the HPCF, RHR, RBCW, and RSW systems (e.g., the CCFs of pumps, pump auxiliary equipment, manual valves, motor-operated valves, check valves, room air conditioners, spargers, strainers, circuit breakers, flow transmitters, heat exchangers, and temperature elements), the staff requests that the applicant re-evaluate these SSCs for inclusion in RAP considering their CCF risk importance (e.g., RAW and FV).

17.04-10

The staff requested in RAI 17.04-3 that STP clarify whether the CWS pump circuit breakers are risk-significant and revise Section 19K of the STP FSAR accordingly. In response to RAI 17.04-3, STP stated that tripping of the CWS pumps on detection of turbine building flooding is not required for flooding control. As such, STP identified the changes to be made to Section 19K.7 of the STP FSAR. The staff agreed with these changes. However, STP did not address the necessary changes to Table 19K-4 of the STP FSAR, Revision 2, that considers the CWS pump circuit breaks as risk-significant through incorporation by reference to the ABWR DCD. The staff requests that STP revise Table 19K-4 of the STP FSAR accordingly.

17.04-11

The first paragraph of STP's response to RAI 17.04-6 states "Common cause failures included in the Level 1 internal events model use the same screening criteria for Fussell-Vesely (FV), $\geq 1.0\%$, and Risk-Achievement Worth (RAW), ≥ 2.0 , as independent events, as indicated in Table 19K-1." The above listed criteria seems to be inconsistent in that, according to Tables 19K-1 and 19K-2 of the ABWR Standard Safety Analysis Report (SSAR) the criteria used are FV greater than 1.0% or RAW greater than 5. Also, Section 17.4S.1.4.1 ("PRA Risk Ranking") of the STP FSAR uses the criteria FV greater than 0.5% and RAW greater than 2.0. The staff requests that STP provide clarification of the first paragraph in STP's response to RAI 17.04-6.

Based on STP's response to RAI 17.04-6, STP seemed to have merged the "Medium" risk category into the "High" risk category. [For example, in STP FSAR, Revision 2, Section 17.4S.1.4.2 ("Deterministic Risk Ranking") the "High" category had a score range between 71 and 100, while the "Medium" category had a score range between 41 and 70. In STP's response to RAI 17.04-6, the mark-up of STP FSAR, Section 17.4S.1.4.2 shows that the "Medium" category was deleted and the "High" category now has a score range between 41 and 100.] The staff found this to be acceptable. However, the following revised text to STP FSAR, Section 17.4S.1.4.2, which is provided in the response to RAI 17.04-6, does not seem to be appropriate: "Specifically, a weighted score of 25 on any one question results in a HSS HIGH categorization; ~~a weighted score of 15-20 on any one question results in a minimum categorization of MSS...~~" Since the "Medium" category was included in the scope of RAP under Revision 2 of the STP FSAR and is now merged into the "High" category, it would suggest that the above statement should infer that a weighted score between 15 and 25 on any one question results in a HIGH categorization. For example, loss of an SSC function that is safety significant for shutdown (i.e., weight value of 3 in Section 17.4S.1.4.2) that has a high impact and/or occurs frequently (i.e., numerical answer of 5 in Section 17.4S.1.4.2) would have a weighted score of 15 and should be included in the "High" category. Another example, loss of an SSC function that directly fails another risk-significant system (i.e., weight value of 4 in Section 17.4S.1.4.2) that has a high impact and/or occurs frequently (i.e., numerical answer of 5 in Section 17.4S.1.4.2) would have a weighted score of 20 and should be included in the "High" category.

The staff requests that STP clarify in the STP FSAR the deterministic criteria relating to a low categorization receiving a high categorization if any one question received a high numerical answer. Also, FSAR Sections 17.4S.1.2.2 and 17.4S.4 should be appropriately modified since these sections use the terms "medium or high risk".