## PMSTPCOL PEmails

**From:** Eudy, Michael
**Sent:** Thursday, July 30, 2009 12:26 PM
**To:** 'dwstillwell@stpegs.com'; Chappell, Coley; Lai, John; Tetter, Keith; Hamzehee, Hossein
**Cc:** STPCOL
**Subject:** Electronic copy of STP Chp 19 RAI letter #162
**Attachments:** ML092110042.pdf

**Importance:** High

**Hearing Identifier:** SouthTexas34Public_EX
**Email Number:** 1576

**Mail Envelope Properties** (3D27D29AB75BCD4BAE913B63CBFBBEDFDE74BA42EF)

**Subject:** Electronic copy of STP Chp 19 RAI letter #162
**Sent Date:** 7/30/2009 12:26:13 PM
**Received Date:** 7/30/2009 12:26:15 PM
**From:** Eudy, Michael

**Created By:** Michael.Eudy@nrc.gov

**Recipients:**
"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"'dwstillwell@stpegs.com'" <dwstillwell@stpegs.com>
Tracking Status: None
"Chappell, Coley" <ccchappell@STPEGS.COM>
Tracking Status: None
"Lai, John" <John.Lai@nrc.gov>
Tracking Status: None
"Tetter, Keith" <Keith.Tetter@nrc.gov>
Tracking Status: None
"Hamzehee, Hossein" <Hossein.Hamzehee@nrc.gov>
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| ML092110042.pdf | 88646 | |

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

July 30, 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. 162 RELATED TO SRP SECTION 19 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. 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 301-415-3104 or by e-mail at Michael.Eudy@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

***/RA/***

Michael Eudy, Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking Nos. 3166 and 3196

Enclosure:
Request for Additional Information

cc: William Mookhoek
Bill Stillwell

If you have any questions or comments concerning this matter, I can be reached at 301-415-3104 or by e-mail at Michael.Eudy@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

***/RA/***

Michael Eudy, Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 3166 and 3196

Enclosure:
Request for Additional Information

cc: William Mookhoek
Bill Stillwell

Distribution:
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**ADAMS Accession No. ML092110042** NRO-002

| OFFICE | SPLB/TR | SPLB/TR | SPLB/BC | NGE2/PM | OGC | NGE2/L-PM |
|---|---|---|---|---|---|---|
| NAME | JLai | KTetter | HHamzehee | TTai | SKirkwood | GWunder |
| DATE | 6/17/09 | 6/22/09 | 6/23/09 | 6/24/09 | 7/22/09 | 7/23/09 |

***Approval captured electronically in the electronic RAI system.**

**OFFICIAL RECORD COPY**

Request for Additional Information No. 3196 Revision 2

7/23/2009

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19.0

QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 2 (ESBWR/ABWR Projects) (SPLB)

19-23

The statements in Section 19N of the STP FSAR, Revision 2, do not appear to be consistent with the statements in Section 19N of the ABWR DCD ("Analysis of Common-Cause Failure of Multiplex Equipment") in accordance with departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture). The inconsistencies are as follows:

1) Section 19N.5 of the ABWR DCD states "The effects of EMUX CCF are included in the quantification of core damage frequency in the internal events analysis of Appendix 19D. Additional discussion is given herein to provide further information and insight into the nature of EMUX CCF contribution to core damage frequency." In section 19N.5 of the STP FSAR, Revision 2, it appears that the term CCF is missing in this statement under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

2) Figure 19N-4 of the ABWR DCD states: "AUTOMATIC INITIATION THRU EMUX". Figure 19N-4 of the STP FSAR, Revision 2, does not appear to address this statement for departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

3) Section 19N.3 of the ABWR DCD states: "(10) To reduce the probability of spurious initiation of ECCS, two SLUs are used in parallel within a division, with 2/2 voting at the final channel output to initiate equipment actuation." In section 19N.3 of the STP FSAR, Revision 2, the term SLU appears to be used incorrectly in this statement under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

4) Section 19N.3 of the ABWR DCD states: "(12) Control room indications, annunications, and alarms associated with EMUX transmitted control signals are dependent on correct operation of EMUXs." Section 19N.3 of the STP FSAR, Revision 2, does not include this statement under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

5) Section 19N.4.5 of the ABWR DCD states: "Only the analog-to-digital converters of the RMUs require calibration." In Section 19N.4.5 of the STP FSAR, Revision 2, the term ECFs appears to be used incorrectly in this statement under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

6) Section 19N.5.1 of the ABWR DCD states: "If there were sufficient experience data for multiple failures of solid-state multiplexing equipment, the experience data would be used directly and there would be no need for use of the beta-factor model. However, there is a dearth of multiple-failure data pertaining to solid-state multiplexer equipment,

particularly equipment with a self-test feature. The alternative is to evaluate or estimate the relative susceptibility of the EMUX to multi-divisional failures through use of the beta-factor. A recent report by the Electric Power Research Institute (EPRI) (Reference 19N-1) discusses the beta-factor model and lists representative values for beta. The values listed generally range from 0.1 down to about 0.01, but there is no value given specifically for solid-state multiplexing equipment." Section 19N.5.1 of the STP FSAR, Revision 2, does not appear to address this statement for departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture).

7) Section 19N.5.1 of the ABWR DCD states: "The random unavailability of the RMUs and TLUs is derived from an expected mean time between failures (MTBF) and a mean time to detect and repair a failure (MTTR)." In section 19N.5.1 of the STP FSAR, Revision 2, the term TLU appears to be used incorrectly under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture) and Figure 7.9S-1 (Data Communication Interfaces).

8) In section 19N.3, Items (1), (3), (6), (8), and (9) of the STP FSAR, Revision 2, the terms DTU and TLU appear to be used incorrectly under departure STD DEP T1 3.4-1 (Safety-Related I&C Architecture) and Figure 7.9S-1 (Data Communication Interfaces).

The staff requests that the applicant address the above inconsistencies and revise Section 19N of the STP FSAR, as necessary.

Request for Additional Information No. 3166 Revision 2

7/30/2009

South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: Chapter 19

QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 2 (ESBWR/ABWR Projects) (SPLB)

19-26

In Section 19K, Tables 19K-1, 19K-2, 19K-3 and 19K-4 from ABWR DCD are updated to reflect the STP plant-specific PRA results. These tables indicate that the plant-specific PRA results are provided in SSAR because the PRA section is not part of the DCD. However, it is not clear whether the applicant intended to state that the plant-specific results are identical to those in the SSAR, or the plant-specific changes are insignificant and, therefore, are not reported in the COL application. Please clarify this and make the appropriate changes to the text in Chapter 19. In addition, please review other sections in Chapter 19 to identify and clarify any similar occurrences.