

August 3, 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. 184 RELATED TO
SRP SECTIONS 02.04.03, 02.04.04 AND 02.04.10 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 301-415-6197 or by e-mail at Tekia.Govan@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA - S. Joseph for/

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

Docket Nos. 52-012
52-013

eRAI Tracking Nos. 3140, 3141, 3144

Enclosures:
Request for Additional Information

cc: William Mookhoek
Richard Bense

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cc: William Mookhoek
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ccchappell@STPEGS.com
 STP.COL
wemookhoek@STPEGS.com

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NRO-002

OFFICE	RHEB/TR	RHEB/BC	NGE2/PM	OGC	NGE2/L-PM
NAME (3140)	HAhn	RRaione	TGovan	SKirkwood	GWunder
DATE	6/17/2009	6/17/2009	6/18/2009	7/20/2009	8/3/2009
OFFICE	RHEB/TR	RHEB/BC	NGE2/PM	OGC	NGE2/L-PM
NAME (3141)	HAhn	RRaione	TGovan	SKirkwood	GWunder
DATE	6/17/2009	6/17/2009	6/18/2009	7/21/2009	8/3/2009
OFFICE	RHEB/TR	RHEB/BC	NGE2/PM	OGC	NGE2/L-PM
NAME (3144)	HAhn	RRaione	TGovan	SKirkwood	GWunder
DATE	6/17/2009	6/17/2009	6/18/2009	7/21/2009	8/3/2009

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

OFFICIAL RECORD COPY

Request for Additional Information No. 3140 Revision 2

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 02.04.03 - Probable Maximum Flood (PMF) on Streams and Rivers
Application Section: FSAR 2.4S.3**

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.03-9

Describe which of the HEC-HMS model parameter values used in the Halff study were changed for the STP Units 3 and 4 FSAR PMF analysis. Include a table of these parameters with corresponding values used in the two studies. Describe the process used to arrive at the parameter values used in the STP Units 3 and 4 FSAR.

Enclosure 1

Request for Additional Information No. 3141 Revision 2

South Texas Project Units 3 and 4 South Texas Project Nuclear Operating Co Docket No. 52-012 and 52-013 SRP Section: 02.04.04 - Potential Dam Failures Application Section: FSAR 2.4S.4

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.04-11

In response to RAI 02.04.04-9 and 02.04.04-10 (U7-C-STP-NRC-090012, February 23, 2009; Attachment 1), the applicant proposed changes to the FSAR. The proposed text for FSAR Subsection 2.4S.4.2.2.3.1 mentions that a hypothetical sump was modeled at East, West, and North boundaries. Is this configuration simply a deepening of the topography along these boundaries when the water surface elevation is held constant? How were the sumps added to the model and how were they incorporated with the specified boundary conditions? RMA2 model description suggests that these sumps were needed to improve model stability. What is the nature of the instability that is being addressed? Provide citations to publicly-available references that describe this approach while using the RMA2 model.

02.04.04-12

In response to RAI 02.04.04-9 and 02.04.04-10 (U7-C-STP-NRC-090012, February 23, 2009; Attachment 1), the applicant proposed changes to the FSAR. The proposed text for FSAR Subsection 2.4S.4.2.2.3.2 discussed the impact of treating buildings in the MCR breach analysis as "hard" or "soft." The response states that considering the buildings as "soft" results in a conservative estimate of flood inundation. It is not clear if this is general statement or finding from this particular model analysis. The conclusion made in the RAI response (applicant's response to RAI 02.04.04-3, in U7-C-STP-NRC-090022, Attachment 4, Page 1 of 4) is not clear to staff because removal of obstructions ("soft" buildings) may increase the cross-sectional area of the discharge even though the roughness in those areas may have been increased. Provide a discussion why removal of "soft" buildings would result in higher flood water surface elevations and greater velocities.

02.04.04-13

In response to RAI 02.04.04-9 and 02.04.04-10 (U7-C-STP-NRC-090012, February 23, 2009; Attachment 1), the applicant proposed changes to the FSAR. The applicant stated in the proposed text for FSAR Subsection 2.4S.4.2.2.4.2: "The flood flow from the MCR embankment breach would not erode the STP 3 and 4 plant site area because surfacing in this area is mostly concrete or asphalt pavement or compacted gravel and grass. The maximum velocity of 4.72 ft/s would not cause severe erosion of these surfaces, and any minor erosion around corners of the buildings would not impact the safety-related facilities of Units 3 and 4." The applicant did not describe if a threshold maximum velocity would be considered to cause erosion that would be severe. Provide a description of the amount of erosion that would be considered severe and a flow velocity that may lead to such an erosion. Include publicly-available references in support.

Enclosure 2

Request for Additional Information No. 3144 Revision 2

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 02.04.10 - Flooding Protection Requirements
Application Section: FSAR 2.4S.10**

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.10-2

10 CFR 52.1(a) states “[s]ite characteristics are the actual physical, environmental and demographic features of a site. Site characteristics are specified in an early site permit or in a final safety analysis report for a combined license.” 10 CFR 50.2 states: “Design bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be ... requirements derived from analysis (based on calculation and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals.” Table 2.0-2 of FSAR Rev 0 lists site characteristics including those related to surface and ground water events. Provide the following site characteristics (if a site characteristic listed below is not relevant to the site, a description should be included as justification why it was excluded) and indicate which of these would be used in design of or verification of the designs of various safety-related SSCs:

1. The grade elevations of all safety-related SSCs and the corresponding site grade elevations
2. The local intense precipitation
3. The maximum water surface elevation from the most severe of the combined-effects floods
4. The most severe hydrodynamic (drag) forces
5. The most severe rate-of-rise of flood water surface
6. The minimum low water surface elevation
7. Ice conditions and forces (precursors for frazil ice formation; maximum historical ice sheet thickness; most severe combination of crushing, bending, buckling, and splitting forces from ice on safety-related SSCs)
8. The maximum post-construction groundwater elevation
9. The point-of-compliance for 10 CFR Part 20, Appendix B, Table 2, Column 2 dose limits to the public from accidental release of liquid radioactive effluents by the operating plant or plants in surface and ground water pathways.