

PMSTPCOL PEmails

From: Joseph, Stacy
Sent: Tuesday, December 15, 2009 10:19 AM
To: 'Tomkins, James'
Cc: STPCOL
Subject: FW: Request for Additional Information Letter No. 236 and 237 Related To SRP Section 06.02.02 For The South Texas Project Combined License Application
Attachments: ML093480253.pdf; image001.jpg; ML093480228.pdf

From: Keith, Felicia
Sent: Tuesday, December 15, 2009 9:44 AM
To: Bill Mookhoek; Chappell, Coley; Scott Head
Cc: Joseph, Stacy
Subject: Request for Additional Information Letter No. 236 Related To SRP Section 06.02.02 For The South Texas Project Combined License Application

TO: Scott Head

FROM: Stacy Joseph

DATE: December 14, 2009

ADAMS Accession No. ML093480253

Felicia Keith, Secretary
ESBWR/ABWR Projects Branch 2
Division of New Reactor Licensing
Office of New Reactors
301-415-2950
Felicia.Keith@nrc.gov



Hearing Identifier: SouthTexas34Public_EX
Email Number: 1955

Mail Envelope Properties (BBC4D3C29CD0E64E9FD6CE1AF26D84D51FA5489526)

Subject: FW: Request for Additional Information Letter No. 236 and 237 Related To SRP
Section 06.02.02 For The South Texas Project Combined License Application
Sent Date: 12/15/2009 10:18:50 AM
Received Date: 12/15/2009 10:18:53 AM
From: Joseph, Stacy

Created By: Stacy.Joseph@nrc.gov

Recipients:
"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"Tomkins, James" <jetomkins@STPEGS.COM>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	607	12/15/2009 10:18:53 AM
ML093480253.pdf	102664	
image001.jpg	4368	
ML093480228.pdf	96838	

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

December 14, 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. 236 RELATED TO
SRP SECTION 06.02.02 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.

S. Head

-2-

If you have any questions or comments concerning this matter, I can be reached at 301-415-2849 or by e-mail at Stacy.Joseph@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Stacy Joseph, 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. 4115

Enclosures:
Request for Additional Information

cc: William Mookhoek
James Tomkins

S. Head

-2-

If you have any questions or comments concerning this matter, I can be reached at 301-415-2849 or by e-mail at Stacy.Joseph@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Stacy Joseph, 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. 4115

Enclosures:
Request for Additional Information

cc: William Mookhoek
James Tomkins

Distribution:

PUBLIC

NGE ½ R/F

SJoseph

RidsNroDnrlNge2

EMiller

RidsOgcMailCenter

SKirkwood

JMcKirgan

RidsNroDsraSbcv

GWunder

ADAMS Accession No. ML093480253

NRO-002

OFFICE	SBCV/TR	SBCV /BC	NGE2/PM	NGE2/L-PM
NAME	EMiller	JMcKirgan	SJoseph	GWunder
DATE	12/4/2009	12/4/2009	12/14/09	12/9/2009

***Approval captured electronically in the electronic RAI system.
OFFICIAL RECORD COPY**

Request for Additional Information No. 4115 Revision 2

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 06.02.02 - Containment Heat Removal Systems
Application Section: Appendix 6C**

QUESTIONS for Containment and Ventilation Branch 2 (ESBWR/ABWR Projects) (SBCV)

06.02.02-14

This RAI supplements RAI 06.02.02-6.

The staff has reviewed The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System (ECCS) (Report 1), The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer (Report 2), and The Evaluation example of the Head Loss of the ECCS Suction Strainer and Pipe in the ECCS Pump Run-Out Flow Condition (Report 3) which were submitted to support STP in showing they have a bounding head loss analysis. In accordance with 10 CFR 50.46(a)(1)(i) and Regulatory Guide 1.82 Revision 3, the NRC staff requests that the applicant provide the following information to assist the staff in completing their safety evaluation.

According to Report 1 it appears that the Small Scale Test, which is reported on pages 10 and 11, is being used to determine correction coefficient for bed thickness (empirical shape factor) of a cassette-shaped strainer. Report 2 also appears to explain that the Small Scale Test was used to determine the correction coefficient for bed thickness (empirical shape factor) and also the specific surface area used for the cassette-shaped strainer.

- a.) The staff finds this to be confusing. The applicant should provide clarification for the use of the small scale testing and whether or not this testing is being used to not only determine the various parameters to be used in the theoretical head loss correlation, but also to determine empirical head loss data to be used in comparison of the theoretical calculation of head loss. Also provide information which describes what makes this small scale test conservative or prototypical.
- b.) If STP is suggesting that the small scale testing used to show NPSH predicted under debris loading is conservative, the applicant should also provide clarification of why the four pocket vertical small scale test was chosen to be conservative or prototypical.
- c.) The applicant provided in page 24 of Report 2 'Test Case' at the top of the page. The applicant did not distinguish if the three test cases are used to determine the theoretical correction parameters for the NUREG/CR-6224 correlation or if they were used to determine empirical head loss data to be used in comparison of the theoretical calculation of head loss. The applicant should distinguish the uses of these test cases and provide a description of what makes them prototypical or conservative with respect to the Reference Japanese ABWR plant scenario Loss of Coolant Accident (LOCA). The applicant should also provide detailed procedures along with a description of what makes the procedures conservative or prototypical with respect the Reference Japanese ABWR plant scenario LOCA. In addition:

Enclosure

i.) The applicant should provide detailed information along with the procedures explaining why the debris selection, (i.e. size and density), debris loading, and debris preparation (i.e. crushing or shredding) was chosen as conservative or prototypical.

ii.) The applicant should also address the conservativeness or prototypicality with respect to settling and approach velocity for the testing used to determine empirical head loss data.

iii.) The applicant should clarify how it determined the thin bed effect cases and discuss what guidance was used in determining the appropriateness of this being acceptable for a thin bed effect.

d.) The staff finds the reports to be difficult to follow. The staff and the members of the public need be able to understand the logic used to determine the methods selected and how the evaluation was performed. The applicant should be sure that the logic is clear throughout the reports.

06.02.02-15

In Report 2 (Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer) on Page 18, the Test Filter Area is given in units of meters squared while on page 23 of Report 2 the HPCF Test Filter Area and RHR Test Filter Area are given in units of meters cubed. The applicant should address the difference in units. In addition, the applicant should explain why the values for these test filter areas are different since they are for the same test.

06.02.02-16

On page 42 of Report 1 (The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System) and on Page 10 of Report 2 (The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer) there is an evaluation of the debris loading and flow on the ECCS Suction Strainers which sites the use of an orifice to evaluate flows through the fully loaded strainer. The applicant should provide clarification of what makes the orifice prototypical or conservative with respect to plant conditions.

06.02.02-17

Report 2 (The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer), Table 3.5 provides 'Debris volume on each strainer'. The applicant's explanation is confusing as to how these values were determined as compared to Table 3-6 on page 35 of Report 2. The applicant should explain if Table 3-5 was meant to show debris volume on each pump as opposed to each strainer.

06.02.02-18

In Appendix A of Report 2 (The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer), the results for head loss test with full scale strainer for BWR plant were provided. The staff was unable to determine the effectiveness of the full scale testing and requests the applicant address the following concerns:

- a.) The applicant should provide a description explaining why full scale testing was prototypical or conservative
- b.) The applicant provided various test matrices in Table 3-1, Table F-1, Table B-1, Table B-2, and Table B-3, however the staff could not identify how these matrices were determined to be conservative or prototypical with respect to the Reference Japanese ABWR plant scenario LOCA. Please provide a description of how these matrices were determined and what makes them prototypical or conservative with respect to Reference Japanese ABWR plant scenario.
- c.) The applicant provided general statements on debris preparation and the procedure for running the full scale test. The applicant should provide a more detailed description of the procedures and debris preparation in order to help the staff in determining what makes the procedures and debris preparation prototypical or conservative in predicting head loss with respect to the Reference Japanese ABWR plant scenario LOCA.
- d.) In the applicants assessment to meeting Regulatory Guide 1.82 Rev. 3 2.3.2.4 the applicant states 'debris settling is not postulated'. Since no credit is taken for settling and STP assumes all debris is transported to the Suppression Pool (S/P), the applicant should clarify how they met this assumption in the full scale test considering only a baffle was available to prevent settling.

06.02.02-19

Page 24 of Report 2 (The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer) provides a test case for high head loss due to thin bed effect. On page 15 of Report 1 the report speaks to having a case dealing with thin bed effect which showed thin bed head loss results. The applicant should clarify how it determined these thin bed effect cases and discuss what guidance was used in determining the appropriateness of this case being acceptable for a thin bed effect.

December 14, 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. 237 RELATED TO
SRP SECTION 06.02.02 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 301-415-2849 or by e-mail at Stacy.Joseph@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Stacy Joseph, 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. 4116

Enclosures:
Request for Additional Information

cc: William Mookhoek
James Tomkins

If you have any questions or comments concerning this matter, I can be reached at 301-415-2849 or by e-mail at Stacy.Joseph@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Stacy Joseph, 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. 4115

Enclosures:
Request for Additional Information

cc: William Mookhoek
James Tomkins

Distribution:

PUBLIC	HWagage	RidsNroDsraSbcv
NGE ½ R/F	RidsOgcMailCenter	GWunder
SJoseph	SKirkwood	
RidsNroDnrlNge2	JMcKirgan	

ADAMS Accession No. ML093480228

NRO-002

OFFICE	SBCV/TR	SBCV /BC	NGE2/PM	NGE2/L-PM
NAME	HWagage	JMcKirgan	SJoseph	GWunder
DATE	12/7/2009	12/8/2009	12/14/09	12/11/2009

***Approval captured electronically in the electronic RAI system.
OFFICIAL RECORD COPY**

Request for Additional Information No. 4116 Revision 3
South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co
Docket No. 52-012 and 52-013
SRP Section: 06.02.02 - Containment Heat Removal Systems
Application Section: 6C

QUESTIONS for Containment and Ventilation Branch 2 (ESBWR/ABWR Projects) (SBCV)

06.02.02-20

In its RAI 06.02.02-6 Supplemental Response, dated October 29, 2009, the applicant proposed a change to the STP 3&4 FSAR that "The ECCS suction strainer design to be used on STP 3&4 is the same as the design for the Reference Japanese ABWR." (page 4 of 247)

The applicant should provide sufficient information in the FSAR on the strainers rather than referring to a plant for which information is not readily available.

06.02.02-21

In its RAI 06.02.02-6 Supplemental Response, dated October 29, 2009, the applicant proposed a change to the STP 3&4 FSAR that "For STP 3&4, the only type of thermal insulation allowed inside the primary containment is all stainless steel reflective metal insulation." (page 4 of 247)

The applicant should clarify that fiber is not used in the containment. For example, although fiber is not used as a thermal insulation it may be used as fire barrier material.

06.02.02-22

Item 4.c of ABWR DCD Tier 1 Table 2.4.1 states 50% blockage of pump suction strainers in determining NPSH margin as stated in RG 1.82 Rev. 1. However, STP 3&4 are committed to conforming to RG 1.82 Rev. 3 (FSAR Tier 2 Table 1.8-20) which does not refer to a criterion of 50% blockage of pump suction strainers. Instead RG 1.82 Rev. 3 provides guidance for mechanistically determining the debris head loss across pump suction strainers. STP should change the FSAR to reflect conformance with the guidance provided in RG 1.82 Rev. 3.

06.02.02-23

In addressing RG 1.82 regulatory position 2.1.2.5, in its RAI 06.02.02-6 Supplemental Response, dated October 29, 2009, the applicant states that "The CCI cassette-type suction strainers are designed to withstand the structural loadings associated with debris accumulation and hydrodynamic loadings, including pool swell, condensation oscillation/chugging, and SRV discharge." (page 10 of 247)

The applicant should provide a reference for this statement.

Enclosure

06.02.02-24

In its RAI 06.02.02-6 Supplemental Response, dated October 29, 2009, the applicant provided information on how STP 3&4 conform to regulatory positions stated in RG 1.82 Rev. 3. However, the conformance to regulatory position 2.1.6 Inservice Inspection is missing in the response. The applicant should provide the missing information.

06.02.02-25

In addressing RG 1.82 regulatory position 2.3.1.7, in its RAI 06.02.02-6 Supplemental Response, dated October 29, 2009, the applicant states that "The appropriateness of the sludge quantity will be confirmed by comparison with TEPCO data from the Japanese ABWRs K6 & 7." (page 20 of 247)

The applicant should state how it would confirm the sludge quantity.