

PMSTPCOL PEmails

From: Tai, Tom
Sent: Thursday, July 02, 2009 2:50 PM
To: John Price (jeprice@stpegs.com)
Cc: Mookhoek, William; STPCOL
Subject: STP RAI 2897 for Chapter 3.9.2 - Letter 140
Attachments: ML0918302103 3.9.2.pdf

John,

Attached for your use is an advance copy of Letter 140 transmitting RAI 2897 for Chapter 3.9.2. A formal copy is in the mail.

Regards

Tom Tai
DNRL/NRO
(301) 415-8484
Tom.Tai@NRC.GOV

Hearing Identifier: SouthTexas34Public_EX
Email Number: 1418

Mail Envelope Properties (C56E360E9D804F4B95BC673F886381E71FBC21C990)

Subject: STP RAI 2897 for Chapter 3.9.2 - Letter 140
Sent Date: 7/2/2009 2:50:21 PM
Received Date: 7/2/2009 2:50:26 PM
From: Tai, Tom

Created By: Tom.Tai@nrc.gov

Recipients:

"Mookhoek, William" <wemookhoek@STPEGS.COM>
Tracking Status: None
"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"John Price (jeprice@stpegs.com)" <jeprice@stpegs.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

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ML0918302103 3.9.2.pdf	95332	

Options

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

July 2, 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. 140 RELATED TO
SRP SECTION 3.9.2 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 301-415-8484 or by e-mail at Tom.Tai@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Tom M. Tai, Senior Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 2897

Enclosure:
Request for Additional Information

cc: William Mookhoek
John Price

S. Head

-2-

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Sincerely,

/RA/

Tom M. Tai, Senior Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 2897

Enclosure:
Request for Additional Information

cc: William Mookhoek
John Price

Distribution:
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NRO-002

OFFICE	EMB2/TR	EMB2/BC	NGE2/PM	OGC	NGE2/L-PM
NAME	TSpicher	JDHerrity	TTai	SKirkwood	GWunder
DATE	5/19/09	5/26/09	7/2/09	6/9/09	6/9/09

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

OFFICIAL RECORD COPY

Request for Additional Information No. 2897 Revision 2

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co.
Docket No. 52-012 and 52-013**

**SRP Section: 03.09.02 - Dynamic Testing and Analysis of Systems Structures and Components
Application Section: 3.9.2**

QUESTIONS for Engineering Mechanics Branch 1 (AP1000/EPR Projects) (EMB1)

03.09.02-1

In FSAR section 3.9.2.3, the applicant stated that STP 3 and 4 reactor internals are substantially the same as those of a valid prototype. Also, the valid prototype has no significant effect on the vibratory response and excitation of those reactor internals important to safety. Therefore, STP 3 and 4 reactor internals are classified a "Non-Prototype, Category I" of the 1350 MWe ABWR. The staff requests that the applicant provide a detailed discussion to adequately justify the statement of substantially the same in arrangement, design, size, and operating conditions for classification of STP 3 and 4 as Non-Prototype, Category I of a 1350 MWe ABWR valid prototype, per Regulatory Guide 1.20.

03.09.02-2

In FSAR section 3.9.2.3, the applicant provided a brief summary of the valid prototype test and analysis results from the guidance of Regulatory Guide 1.206 Section C.1.3.9.2.3. The reactor internals design of the first ABWR plant, which has been in operation since 1995, is considered to be the 1350 MWe ABWR "Valid Prototype". Since the prototype comprehensive vibration assessment program was conducted on a reactor outside the United States, the Regulatory Guide 1.20 requires the detailed results of the program be included in the application related to the non-prototype submitted to the NRC for review and should address all of the provisions in the Regulatory Guide 1.20. Since the comprehensive report was not submitted with the application, the staff was unable to determine if the comprehensive vibration assessment program met the requirements of SRP 3.9.2. The applicant is requested to provide this report.

03.09.02-3

In FSAR section 3.9.2.4, for STP 3 and 4, the applicant states that an inspection program will be implemented in lieu of a vibration measurement program as discussed in paragraph C.3.1.3 of Regulatory Guide 1.20, Rev 3. The staff agrees with this approach, however, the inspection program discussed is brief and the staff was unable to determine if the applicant's inspection program met SRP 3.9.2 requirements. Additional details as discussed in Regulatory Guide 1.20, Rev 3, Section 2.3. are requested and described below:

(1) A tabulation of all reactor internals components and local areas to be inspected. A description of the inspection procedure including the method of examination, method of documentation, provisions for access to the reactor internals, and the criteria which will be applied. The applicant should also discuss what actions will be taken as a result of these inspections.

Enclosure

(2) In addition, the SRP recommends that walkdown inspections of the steam, feedwater, and condensate systems take place during hold points in the testing. The applicant should provide details of the planned walkdowns, what monitoring and testing equipment is required, and what actions will be taken as a result of these inspections.

03.09.02-4

In FSAR section 3.9.2.4, the applicant addresses a difference in the main steam line configuration between STP 3 and 4 and the prototype plant, specifically with respect to the steam dryer loads. The applicant refers to Regulatory Guide 1.20, Rev 3, for guidance on performing analyses and scale model tests. The staff requests that the applicant provide a schedule for reviewing the results of the scale model test and analysis.

03.09.02-5

In FSAR section 3.9.2.6, the applicant discussed the Acoustic Circuit Methodology to analytically predict the steam dryer flow-induced vibration loads. However, no details or a reference document relative to the Acoustic Circuit Methodology were provided. The staff requests that the applicant provide a detailed discussion of the methodology or a reference document for staff review and approval in accordance with SRP Section 3.9.2. requirements.

03.09.02-6

In FSAR section 3.9.2.5, the applicant states that the main steam lines in STP 3 and 4 will be instrumented with strain gages to provide measurements of pressure and fluctuations due to flow-induced vibrations. The measurements will be used by the Acoustic Circuit Methodology to analytically predict the steam dryer flow-induced vibration loads. The predicted loads will then be used with a finite-element model of the dryer to confirm the acceptability of the flow-induced vibration loads. Based on this review, the staff cannot determine if the steam dryer is adversely impacted by the predicted loads. The staff requests that the applicant instrument the dryer to verify the analytically predicted loads and compare them to the measured results. Regulatory Guide 1.20, Rev 3, lists the requirements for the vibration assessment testing of components, which the staff finds acceptable.

03.09.02-7

In NUREG-1503, Volume 1, Section 3.9.7 Reactor Internals Vibration Analysis, Measurement and Inspection Program, ABWR states that the first COL applicant will provide, at the time of the application, the results of the vibration assessment program for the ABWR prototype internals. NRC review and approval of the results, as specified in Regulatory Guide 1.20, will complete the vibration assessment program requirements for prototype reactor internals. In addition to this information, the first COL applicant will provide the information on the schedule in accordance with position C.3 of Regulatory Guide 1.20. The staff's review of the FSAR section 3.9.3 and 3.9.4 did not include information on the schedule. In accordance with Regulatory Guide 1.20, the staff requests the applicant to provide a comprehensive schedule which includes the prototype test report and testing of the steam dryer.

03.09.02-8

In NUREG-1503, Volume 1, Table 2.1.1d Reactor Pressure Vessel System, Inspections, Test, Analyses and Acceptance Criteria, ABWR states in ITAAC #7 that a vibration type test will be conducted on the prototype RPV internals of an ABWR. A flow test and post-test inspection will be conducted on the as-built RPV internals. Since the prototype unit has been identified as the 1350 MWe ABWR, the staff requested the prototype vibration assessment report be made available to be reviewed by the staff. If the report is acceptable, a portion of the ITAAC #7 can be considered complete. The staff requests the applicant to explain how the remaining portion of the ITAAC will be resolved given that the modification of the steam lines in STP 3 and 4 would impact the loading on the steam dryers. It should be noted that a COL applicant should submit the results from the vibration assessment program results for the RPV internals in accordance with Regulatory Guide 1.20.