

PMSTPCOL PEmails

From: STPCOL
Sent: Thursday, October 18, 2012 2:41 PM
To: PMSTPCOL PEmails
Subject: FW: STP - 3.9.2 Draft RAI 6644
Attachments: RAI 6644 10-17-12.doc

From: Tai, Tom
Sent: Wednesday, October 17, 2012 11:50 AM
To: 'jeprice@stpegs.com'
Cc: STPCOL; 'wemookhoek@stpegs.com'
Subject: STP - 3.9.2 Draft RAI 6644

John,

Attached for your information is the draft RAI for FIV. We are available for discussion, if you choose to, on either Thursday (10/18) or Tuesday (10/23).

Please advise.

Regards

Tom Tai
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Email Number: 3475

Mail Envelope Properties (377CB97DD54F0F4FAAC7E9FD88BCA6D0B0FD84C466)

Subject: FW: STP - 3.9.2 Draft RAI 6644
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Request for Additional Information

Issue Date:

Application Title: South Texas Project Units 3 and 4 - Dockets 52-012 and 52-013

Operating Company: South Texas Project Nuclear Operating Co

Docket No. 52-012 and 52-013

Review Section: 03.09.02 - Dynamic Testing and Analysis of Systems Structures and Components

Application Section: 3.9.2

QUESTIONS

NRC Regulatory Guide 1.20, Revision 3, Section 3.1.2 states:

“The vibration measurement program may be omitted if the inspection program is implemented. However the vibration measurement program related to the evaluation of the potential adverse flow effect from pressure fluctuations and vibrations in piping systems for both PWRs and BWRs, should not be omitted.”

There is no mention of main steam line (MSL) instrumentation to monitor the acoustic resonance and the dryer load during power ascension in WCAP-17257, “STP Unit 4 Reactor Internals Flow-Induced Vibration Assessment Program,” Revision 1. The staff requests the applicant to clarify whether instrumentation will be installed on the STP Unit 4 MSLs to ensure that the MSL signals from Unit 4 are bounded by the limit curves obtained from MSL instrumentation installed in Unit 3. In the response to this RAI, the applicant is requested to:

- (a) Provide the number of strain gages to be installed on each MSL and the measures taken to ensure sufficient redundancy.
- (b) Explain and justify the method which will be used to calibrate the strain gages mounted on the MSLs and the dryer.
- (c) Explain the benchmarking and validation procedures for determining the dryer stresses from measurements on the MSLs, including the determination and validation of frequency dependent end-to-end bias error and uncertainties.
- (d) Include the provided information in WCAP-17257.

The applicant is requested to provide detailed license conditions for the flow-induced vibration start-up test program of Unit 3. The license conditions should address the following items:

(a) Hold point at 60% at which full measurement program will be completed and the stress predictive analysis will be re-benchmarked to update the frequency dependent end-to end bias error and uncertainties (B&U) for the two methods using the strain gages on the dryer and on the MSLs. The end-to-end B&U, which will be used in load trending and projection for the next power hold point and full power conditions, should be based on comparison of the measured and the predicted stress/strain on the dryer.

(b) Acceptance criteria (limit curves) based on the measurements at 60% power level.

(c) Additional specific hold points beyond the first one at 60% power level. During these hold points, full measurement program will be completed and the B&U and acceptance criteria (limit curves) will be updated based on the measured data.

(d) Data trending and projection of pressure, strain and acceleration levels to the next hold point and full power level.

(e) Actions to be taken during power ascension of Unit 3 if the measured dryer stresses or pressures challenge the limit curves developed from the previous hold point.

(f) Reporting of results to NRC at 60%, 80%, 90% & 100% power, and allowing sufficient time for NRC staff to review the data before increasing the power to next hold point.

(g) Providing a full stress analysis report after data collection and evaluation at full power level. The report should include the final dryer load definition and associated end-to-end B&U for strain gage data collected on the dryer and on the MSLS. Final limit curves for strain gages mounted on the MSLS, which will be used during the start-up tests of Unit 4, should also be included in the final stress analysis report.

The applicant is requested to provide detailed license conditions for the flow-induced vibration start-up test program of Unit 4. The license conditions should address the following items:

(a) Actions to be taken during the power ascension of Unit 4 if the strain gage signals on the MSLS exceed the limit curves developed from the start-up tests of Unit 3.

(b) Reporting of results to NRC at 80%, 90% & 100% power, and allowing sufficient time for NRC staff to review the data before increasing the power to next hold point.

(c) Providing a full stress analysis report after data collection and evaluation at full power level. The report should include the final dryer load definition and comparison with the load definition of Unit 3.