UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 29, 2009

Mr. R. M. Krich
Vice President, Nuclear Licensing
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNIT 1, REQUEST FOR ADDITIONAL INFORMATION FOR EXTENDED POWER UPRATE - ROUND 27 (TAC NO. MD5262) (TS-431)

Dear Mr. Krich:

By letter dated June 28, 2004, the Tennessee Valley Authority (TVA, the licensee) submitted an amendment request for Browns Ferry Nuclear Plant (BFN), Unit 1, as supplemented by letters dated August 23, 2004, February 23, April 25, June 6, December 19, 2005, February 1 and 28, March 7, 9, 23, and 31, April 13, May 5, 15, and 16, June 15, 23, and 27, July 6, 21, 26, and 31, August 4, 16, 18, and 31, September 1, 15, and 22, October 3, 5, and 13, November 7, December 1, 5, 11, and 21, 2006, January 31, February 16 and 26, April 6, 18, and 24, July 27, September 24, November 15 and 21, December 14, 2007, January 25 and 31, February 11 and 21, March 6, April 4 and 9, May 1, June 3, 12, and 16, August 15, September 2 and 19, October 3 ,17, and 31, November 11 and 14, December 15, 2008, January 9, 16, and 23, February 18 and 24, March 11, 12, and 27, April 3, 10, 21, and 29, May 7 and 29, July 29, August 11, 28, 31 and September 22, 2009. The proposed amendment would change the BFN operating license for Unit 1 to increase the maximum authorized power level by approximately 14 percent.

A response to the enclosed Request for Additional Information (RAI) is needed before the Nuclear Regulatory Commission staff can complete the review. This request was discussed with Mr. Denzel Housely of your staff on December 17, 2009, and it was agreed that TVA would respond within 30 days of issuance of this letter. A proprietary version of this correspondence will be transmitted under a separate cover letter.

If you have any questions, please contact me at (301) 415-2315.

Sincerely

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-259

Enclosure:
RAI

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REQUEST FOR ADDITIONAL INFORMATION

EXTENDED POWER UPRATE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT UNIT 1

TAC NO. MD5262

EMCB

By letter dated August 28, 2009, the licensee submitted the steam dryer analysis for 110 percent original licensed thermal power (OLTP) in Enclosure 2, CDI 09-24P, *Stress Assessment of Browns Ferry Nuclear Unit 1 Steam Dryer to 110 percent OLTP Power Level.* A nonproprietary version of this report is available in Enclosure 6. Subsequently by letter dated August 31, 2009, the licensee submitted the steam dryer analysis for 120 percent OLTP. The NRC staff's questions contained below are limited to the 110 percent submittal.

210. In the Executive Summary of Enclosure 2 to a letter dated August 28, 2009 (CDI-09-24P), it is stated that:

[[ ]]

Discuss how the biases and uncertainties [[ ]] frequency ranges were revised [[ ]] over these ranges.

211. On page 46 of CDI Report 09-24P, it is stated:

[[ ]]

Discuss how the bias errors and uncertainties are applied [[.]] Further, provide confirmation that the [[ ]] at the [[ ]] is subjected to the [[ ]] bias errors and uncertainties in the [[ ]] frequency range.

212. In Section 4.4 (page 37) of CDI Report 09-24P, it is stated,

> In the present analysis, undersize weld factors are used in two locations known to be undersized:..

Enclosure

Provide the dimensions of these undersized welds and discuss how the undersized weld factors were estimated.

213. This RAI is in regards to the [[ ]] signals from the Current Licensed Thermal Power (CLTP) signals, [[ ]] the hydrodynamic and acoustic loads on the steam dryer. In a recent conference call with another BWR licensee, using revision 4 of the CDI ACM, regarding their extended power uprate application, the NRC staff was informed that during the benchmarking of the ACM parameters, by means of the Quad Cities Unit 2 (QC2) data, the [[ ]] from the data used to estimate the steam dryer loads.

The NRC staff identified that this was also the case for Unit 1;[[ ]] from the corresponding main steam line (MSL) strain gage signals could produce non-conservative estimates for the steam dryer loads. As a result the NRC staff, reexamined the MSL signals [[ ]] were negligible. The NRC staff's review suggests that [[ ]] impacts the steam dryer loads (compare pages E1-24 through 27 to pages E1-57 through 60).

Provide a revised dryer stress analysis results for 110 percent OLTP conditions based on dryer loads [[ ]]. Should the minimum alternating stress ratio (SR-a) fall below 2.0 for any dryer component, provide the power level at which the minimum SR-a is 2.0 or higher.

214. Provide a detailed description (i.e., a step-by-step procedure) of how the QC2 CLTP signals were modified (both during or after data acquisition) before they were applied to the ACM Rev. 4 code (whose results were used for benchmarking) to estimate acoustic loads on the instrumented QC2 dryer. Also provide the following information about any exclusion frequencies:

a) Provide the amplitudes of the QC2 CLTP signals at [[ ]]. Explain which of these frequencies were treated as exclusion frequencies in modifying QC2 signals.

b) Provide the information on the magnitude of the QC2 recirculating pump frequency. Provide the amplitudes of the CLTP signals at this frequency. Explain whether this frequency was treated as an exclusion frequency in modifying QC2 signals.

c) Explain whether any exclusion frequency filtering was also applied to the instrumented dryer pressure signals.

d) Provide a comparison of frequencies that were treated as exclusion frequencies in ACM Rev. 4 benchmarking and Unit 1 stress analysis. Provide an explanation of the differences.

If you have any questions, please contact me at (301) 415-2315.

Sincerely

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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Enclosure:
RAI

cc w/enclosure: Distribution via Listserv

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