Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

November 14, 2008

TVA-BFN-TS-418
TVA-BFN-TS-431

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop OWFN, P1-35
Washington, D. C. 20555-0001

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) – UNITS 1, 2, AND 3 – TECHNICAL SPECIFICATIONS (TS) CHANGES TS-418 AND TS-431 – EXTENDED POWER UPRATE (EPU) – SUPPLEMENTAL RESPONSE TO ROUNDS 19 AND 22 REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING STEAM DRYERS (TAC NOS. MD5262, MD5263, AND MD5264)

By letters dated June 28, 2004 and June 25, 2004 (ADAMS Accession Nos. ML041840109 and ML041840301), TVA submitted license amendment applications to NRC for the EPU of BFN Unit 1 and BFN Units 2 and 3, respectively. The proposed amendments would change the operating licenses to increase the maximum authorized core thermal power level of each reactor by approximately 14 percent to 3952 megawatts.

On August 12, 2008, NRC staff issued a Round 19 RAI (ML082340002) regarding the EPU steam dryer analyses. By letters dated September 2, 2008 (ML082490169), October 3, 2008, (ML082810471), and October 31, 2008, TVA provided responses to the Round 19 RAI and the draft Round 22 RAI. Enclosure 1 provides the completed responses for Round 19 RAI EMCB.147 and draft Round 22 RAIs EMCB.200/157 and EMCB.160 regarding the steam dryer analyses for EPU. This completes the response to the Round 19 RAIs and the Round 22 RAIs associated with the steam dryers.

In order to standardize the analysis and design of the BFN steam dryers, TVA has decided to perform additional modifications to the Unit 2 steam dryer to replicate the Unit 1 steam dryer design. This approach demonstrates the acceptability of the steam dryer design for the loadings that are experienced by both Units 1 and 2. As discussed in Enclosure 1, the steam dryer stress analysis for Unit 2 has been re-performed to reflect these modifications and to include stress results at EPU conditions. The Unit 2 steam dryer stress analysis is provided in Enclosure 2, CDI Report No. 08-20P, "Stress

D030
NRR

Assessment of Browns Ferry Nuclear Unit 2 Steam Dryer with Outer Hood and Tie-Bar Reinforcements."

Note that Enclosures 1 and 2 contain information that Continuum Dynamics, Inc. (CDI) considers to be proprietary in nature and subsequently, pursuant to 10 CFR 2.390(a)(4), CDI requests that such information be withheld from public disclosure. Enclosure 5 provides an affidavit from CDI supporting this request. Enclosures 3 and 4 contains the redacted versions of the proprietary enclosures with the CDI proprietary material removed, which are suitable for public disclosure.

TVA has determined that the additional information provided by this letter does not affect the no significant hazards considerations associated with the proposed TS changes. The proposed TS changes still qualify for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9).

No new regulatory commitments are made in this submittal. If you have any questions regarding this letter, please contact me at (256)729-2636.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 14th day of November, 2008.

Sincerely,

James E. Emens, Jr.
Licensing Supervisor

Enclosures:

1. Supplemental Response to Rounds 19 and 22 Request for Additional Information (RAI) Regarding Steam Dryers (Proprietary Version)
2. CDI Report No. 08-20P, "Stress Assessment of Browns Ferry Nuclear Unit 2 Steam Dryer with Outer Hood and Tie-Bar Reinforcements" (Proprietary Version)
3. Supplemental Response to Rounds 19 and 22 Request for Additional Information (RAI) Regarding Steam Dryers (Non-proprietary Version)
4. CDI Report No. 08-20NP, "Stress Assessment of Browns Ferry Nuclear Unit 2 Steam Dryer with Outer Hood and Tie-Bar Reinforcements" (Non-proprietary Version)
5. CDI Affidavit

Enclosures
cc (Enclosures):

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ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3

TECHNICAL SPECIFICATIONS (TS) CHANGES TS-431 AND TS-418
EXTENDED POWER UPRATE (EPU)

SUPPLEMENTAL RESPONSE TO ROUNDS 19 AND 22 REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING STEAM DRYERS

(NON-PROPRIETARY VERSION)

Attached is the non-proprietary version of the Supplemental Response to Rounds 19 and 22 RAI Regarding Steam Dryers.

SUPPLEMENTAL RESPONSE TO ROUND 19 RAI

NRC RAI EMCB.147 (Unit 2 only)

Provide analysis and plots for Unit 2 similar to those provided for Unit 1 in response to RAI EMCB.172. Provide an explanation why the 19-percent power data shown in Figures 3.2 through 3.5 in CDI Report No. 08-05P, *Acoustic and Low Frequency Hydrodynamic Loads at CLTP Power Level on Browns Ferry Nuclear Unit 2 Steam Dryer to 250 Hz*, are higher than the data at CLTP for frequencies above about 120 Hz. Provide justification for removing any signal from the Unit 2 CLTP source strengths without reliable background noise signals. TVA should include stress and stress ratio tables in CDI Report 08-16P, *Stress Assessments of Browns Ferry Nuclear Unit 2 Steam Dryer with Tie Bar and Hood Modifications*, using unfiltered MSL signals.

Supplemental Response to EMCB.147 (Unit 2 only)

As discussed in the response to RAI EMCB.147 in the October 3, 2008, submittal, "Supplemental Response to Round 19 RAI and Response to Rounds 20 and 21 RAI" (ML082810471), the Unit 2 steam dryer stress analysis is being re-performed with newly acquired low flow (LF) and companion electrical interference check (EIC) signals taken at 5% power. The new LF signal replaces the previous 19% power signal which was determined to be atypical of the plant operating state. The current licensed thermal power (CLTP) signals have not been changed. The signals used in the Unit 2 stress analysis is illustrated in Figures 3.2 through 3.5 of CDI Report No. 08-05P, "Acoustic and Low Frequency Hydrodynamic Loads at CLTP Power Level on Browns Ferry Nuclear Unit 2 Steam Dryer to 250 Hz," which was provided as Enclosure 4 of the submittal dated October 31, 2008, "Supplemental Response to Round 19 RAI and Response to Round 22 RAIs Regarding Steam Dryers."

In order to standardize the analysis and design of the BFN steam dryers, TVA has decided to perform additional modifications to the Unit 2 steam dryer to replicate the Unit 1 steam dryer design. This approach demonstrates the acceptability of the steam dryer design for the loadings that are experienced by both Units 1 and 2. These modifications will include:

- Replacement of the 3/8 inch thick cover plates with 1 inch cover plates
- Replacement of the 1/2 inch thick hood face plates at 90° and 270° with 1 inch hood face plates
- Removal of the two 1/4 inch vertical stiffeners behind each of the outer hood face plates and addition of two vertical stiffening channels on each hood face
- Removal of support beam ends
- Tie bar modifications
- Addition of steam dam support gussets

The completed Unit 2 steam dryer stress analysis is provided in Enclosure 2, CDI Report No. 08-20P, "Stress Assessment of Browns Ferry Nuclear Unit 2 Steam Dryer with Outer Hood and Tie-Bar Reinforcements." The revised Unit 2 stress analysis includes the following changes:

- Utilized a new LF signal and companion EIC signal as discussed above.

- Included modifications that result in a similar design for the Units 1 and 2 steam dryers as discussed above.
- Incorporated the results of submodel analyses as was previously used on the Unit 1 steam dryer analysis.
- Incorporated the results of submodel analysis as described in Appendix A of CDI Report No. 20P.
- Evaluated stress results at EPU conditions by the use of bump-up factors as described in the response to RAI EMCB.192/150 in the October 31, 2008 submittal.

New Unit 2 results based on the above changes indicate a minimum alternating stress ratio with frequency shifts of SR-a = 3.39 at CLTP and SR-a = 2.16 at EPU.

Analysis and Plots Similar to Unit 1 RAI EMCB.172

The power spectral densisty (PSD) plots of the [[ ]] signals at each of the main steam line (MSL) entrances are reproduced below in Figures EMCB.147-2a through 2h. Since the noise floor is shown to be significantly lower than the low power signal, the spectral subtraction strategy can be applied. The noise removal scheme is described in CDI Report No. 08-20P, specifically the paragraph containing equations (8) and (9). This is represented in the following equation:

$$P(f) = P_0(f) * \max\left[\beta, 1 - \frac{\bar{N}(f)}{\bar{P}_0(f)}\right]$$

where the signal cannot be reduced to less than β times it's original (i.e., with noise) amplitude. Previously, the noise removal scheme allowed the signal to be reduced to zero (this corresponds to setting β = 0). More recently, the practice was to limit signal reduction to no less than 50% of its original value (β = 0.5) which corresponds to an amplitude reduction of 3 decibels (dB) or less. The results presented here utilized β = 0.5. The low power data was obtained at 5% power. For comparative consistency, coherence filtering has not been applied to these signals. Coherence filtering is used when generating stress results.

As was observed for the Unit 1 loads, these plots show that at low frequencies, the CLTP signals with and without noise filtering are in good agreement. At higher frequencies, the noise increases producing a stronger reduction in the amplitudes. The filtered [[ ]] PSD plots are in close agreement with the unfiltered CLTP signals. The filtered [[ ]] signals differ from the unfiltered ones in the higher frequency range since the low power non-acoustic signals are more significant (relative to the acoustic signals) in this range. The 5% power signal is generally below or comparable to the CLTP signal at higher frequencies. When the 5% and CLTP signals are of equal amplitude, one would expect that pipe vibrations or other non-acoustic sources dominate and that the acoustic signal strength are negligible - on the order of 30% or less. However, with β = 0.5 filtering, the filtered signal amplitude is never less than one half the unfiltered signal, adding conservatism to the overall filtering process.

The reduction in signal amplitude peaks as a function of frequency is shown for the [[ ]] in Figure EMCB.147-3. These reductions in peak amplitude are obtained by: (1) identifying the peaks in the PSDs for the CLTP signals with no noise reduction, (2) locating the nearest peak in the CLTP signal with noise reduction, and then (3) calculating the amplitude

reduction. For the [[ ]] signals, only those PSD peaks (without noise filtering) higher than 2×10^{-4} psi^2/Hz are plotted. For the [[ ]], peaks higher than 5×10^{-5} psi^2/Hz are plotted. Since $\beta = 0.5$, several points fall on the 50% line since limiting has occurred. The general trend is a growing amplitude reduction with frequency in the 0-100 hertz (Hz) range. At higher frequencies, the amplitude reductions can be anywhere between the 0-50% range as one might expect when the signal is dominated by a non-acoustic component (e.g., mechanical noise) that does not scale directly with power. For the [[ ]] peaks, the effects of noise reduction are restricted to the 0-60 Hz range. The amplitude reductions are small in this range.

Tables EMCB.147-1a and 1b are provided to provide quantitative measures of the reductions in MSL pressure signals after noise filtering (here with $\beta = 0.5$) is applied at the frequencies with the strongest contributions to the stress response. For each MSL [[ ]], the ten highest PSD peaks identified in the 0-250 Hz range without noise filtering are listed. For each such peak, the nearest peak with noise filtering is identified and the relative amplitude reduction is calculated. The [[ ]] are listed in the same manner except that all PSD peaks above 5×10^{-5} psi^2/Hz are listed. With few exceptions, the peaks below 100 Hz (non-shaded) experience percentage amplitude reductions that are in the single digit range or mid-teens. At higher frequencies, stronger amplitude reductions occur as already discussed.

The effects of filtering noise on the basis of the 5% power signal upon stress are examined for the limiting nodes on the Unit 2 steam dryer. The limiting nodes are obtained using the latest steam dryer model with all modifications such as tie bar modifications, added steam dam gussets, and replacement of the outer hood by a thicker hood with external reinforcement channel assemblies instead of interior hood supports. The limiting nodes are obtained from Table 8b of CDI Report No. 08-20P and are identified by subjecting the dryer to the filtered (with $\beta = 0.5$) MSL inlet pressure signals at CLTP and searching for the nodes with the lowest alternating stress ratios. The same nodes are then re-processed using the unfiltered signal with values of $\beta = 0.5$. The limiting nodes and the effects of noise reduction upon the computed stress ratios are summarized in Table EMCB.147-2. The listed frequency shifts indicate at what shift the smallest alternating stress intensity is produced. For the listed nodes, the limiting frequency shifts are identical for both the filtered and unfiltered signals. In order to quantify the frequency-dependent effect of noise reduction on computed stresses, the accumulative PSDs with and without noise reduction are compared for the same eight nodes in Figures EMCB.147-4a through 4d.

Table EMCB.147-1a: Reductions in [[ ]] amplitude peaks due to noise filtering (β = 0.5)

MSL	Frequency [Hz]	PSD [psi^2/Hz] x 10^4	Frequency (β=0.5) [Hz]	PSD (β=0.5) [psi^2/Hz] x 10^4	% Amplitude Change
A	217.06	10.37	217.06	4.09	-37.2
"	228.19	8.32	228.19	2.08	-50.0
"	224.24	7.32	224.24	1.83	-50.0
"	202.59	6.48	202.63	2.19	-41.9
"	110.39	6.34	110.38	3.20	-29.0
"	199.87	6.08	199.86	1.98	-42.9
"	189.30	5.14	189.30	1.28	-50.0
"	231.63	4.76	231.63	1.19	-50.0
"	194.94	3.77	194.94	0.96	-49.7
"	240.37	3.51	240.37	0.88	-50.0
B	27.22	3.97	27.22	3.33	-8.4
"	246.26	3.48	246.26	0.87	-50.0
"	201.99	3.48	201.99	1.27	-39.5
"	199.93	3.03	199.92	1.06	-40.8
"	15.21	2.88	15.21	2.67	-3.7
"	110.28	2.68	110.23	1.26	-31.3
"	64.28	2.64	64.28	1.90	-15.0
"	186.41	2.62	186.41	0.65	-50.0
"	217.12	2.39	217.10	0.96	-36.5
"	94.82	2.30	94.83	1.38	-22.5
C	27.36	9.49	27.36	8.48	-5.4
"	15.20	9.47	15.20	9.11	-1.9
"	246.18	5.96	246.18	1.49	-50.0
"	34.47	4.54	34.47	3.99	-6.3
"	93.70	4.19	93.70	2.89	-17.0
"	64.89	3.73	64.88	2.54	-17.5
"	86.94	3.49	86.94	2.37	-17.6
"	186.70	3.38	186.72	1.74	-28.3
"	241.86	3.29	241.86	0.82	-50.0
"	117.57	3.21	117.58	2.17	-17.8
D	93.10	4.59	93.11	3.47	-13.0
"	113.29	4.15	113.34	2.55	-21.6
"	100.52	3.59	100.51	2.63	-14.4
"	21.54	3.41	21.54	3.14	-4.1
"	29.92	3.33	29.92	2.95	-5.9
"	111.19	3.27	111.16	1.67	-28.5
"	187.81	2.78	187.81	1.51	-26.4
"	179.74	2.63	179.74	0.66	-50.0
"	37.52	2.61	37.52	2.35	-5.1
"	246.19	2.50	246.19	0.63	-50.0

Table EMCB.147-1b: Reductions in [[ ]] amplitude peaks due to noise filtering (β = 0.5)

MSL	Frequency [Hz]	PSD [psi^2/Hz] x 10^4	Frequency (β=0.5) [Hz]	PSD (β=0.5) [psi^2/Hz] x 10^4	% Amplitude Change
A	11.41	9.19	11.41	8.23	-5.3
"	7.11	1.23	7.11	0.88	-15.4
"	29.22	1.14	29.22	0.73	-19.8
"	14.07	0.96	14.13	0.79	-9.2
"	31.95	0.95	31.95	0.68	-15.6
"	19.12	0.91	19.12	0.76	-8.6
"	36.94	0.73	36.96	0.58	-11.1
"	16.81	0.68	16.81	0.54	-11.4
"	21.46	0.61	21.46	0.51	-9.1
B	15.24	2.89	15.24	2.65	-4.2
"	34.02	1.79	34.03	1.44	-10.2
"	5.33	1.74	5.33	1.44	-9.1
"	27.26	1.69	27.27	1.23	-14.6
"	29.42	1.11	29.42	0.67	-22.3
"	8.18	0.86	8.18	0.69	-10.5
"	12.77	0.75	12.79	0.66	-6.2
"	24.74	0.52	24.73	0.34	-18.8
C	15.19	11.14	15.19	10.65	-2.2
"	34.47	2.78	34.47	2.30	-9.2
"	27.35	2.46	27.34	2.00	-9.9
"	5.68	1.56	5.69	1.16	-13.7
"	29.39	1.19	29.38	0.82	-16.7
"	24.19	0.88	24.18	0.70	-10.7
"	31.76	0.71	31.76	0.46	-19.2
"	9.55	0.70	9.55	0.49	-16.3
"	21.45	0.65	21.45	0.55	-7.9
D	11.60	2.28	11.61	2.04	-5.4
"	21.50	1.81	21.50	1.66	-4.3
"	29.94	1.78	29.95	1.42	-10.5
"	37.49	1.31	37.49	1.15	-6.3
"	5.16	1.18	5.16	0.96	-10.0
"	15.39	1.05	15.38	0.92	-6.5
"	26.13	0.87	26.12	0.67	-12.0
"	19.06	0.84	19.07	0.73	-6.4
"	34.79	0.75	34.81	0.61	-9.6
"	7.20	0.71	7.20	0.56	-11.6
"	9.56	0.68	9.56	0.50	-14.2

Table EMCB.147-2: List of nodes on welds in the Browns Ferry Unit 2 dryer having the lowest alternating stress ratios at CLTP.

Location	Node	Filtering with 5% power, β=0.5			No filtering		
		SR-P	SR-a	Freq. Shift (%)	SR-P	SR-a	Freq. Shift (%)
1. Top Cover Middle Hood/Middle Hood/Tie Bar	101376	6.44	3.39	-7.5	5.85	3.04	-7.5
2. Dam Plate/New Gusset	92392	7.02	3.74	2.5	6.43	3.39	2.5
3. Dam Plate/New Gusset	104386	7.69	3.88	2.5	7.06	3.54	2.5
4. Dam Plate/New Gusset	104715	7.75	3.95	2.5	7.10	3.59	2.5
5. Old Hood Overlap/Top Cover Outer Hood/Thin Gusset Pad	92842	5.95	3.95	5	5.67	3.59	5
6. Submerged Drain Channel/Skirt	104136	4.42	4.06	-10	4.18	3.60	-10
7. Top Thick Plate/Dam Plate/Tie Bar/Top Cover Outer Bank	93568	6.82	4.20	-10	6.31	3.84	-10
8. Top Cover Middle Hood/Outer Closure Plate/Middle Hood	106443	2.4	4.22	2.5	2.20	3.50	2.5

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Figure EMCB.147-2a: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL A [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2b: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL B [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2c: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL C [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2d: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL D [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2e: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL A [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2f: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL B [[ ]] pressure signals at CLTP

[[

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Figure EMCB.147-2g: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL C [[ ]] pressure signals at CLTP

[[

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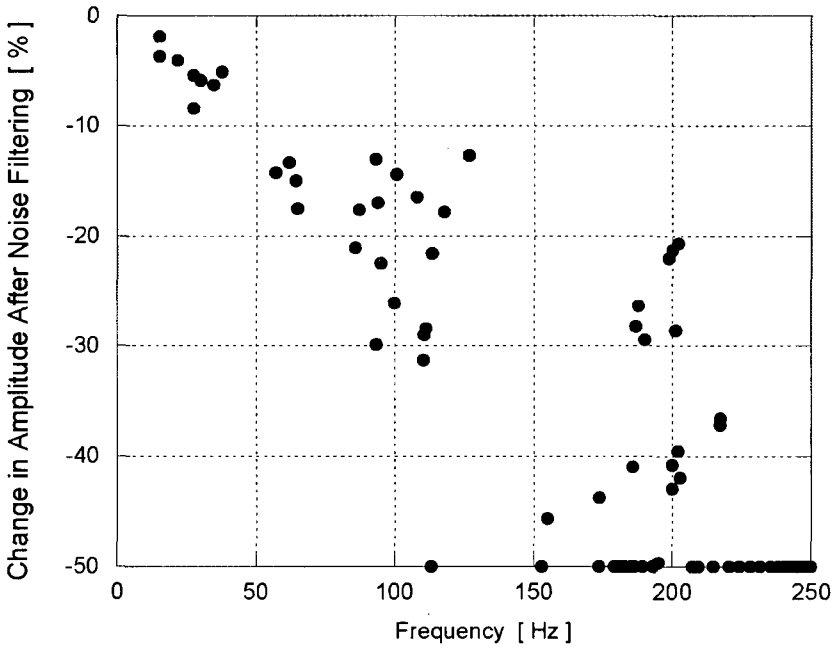
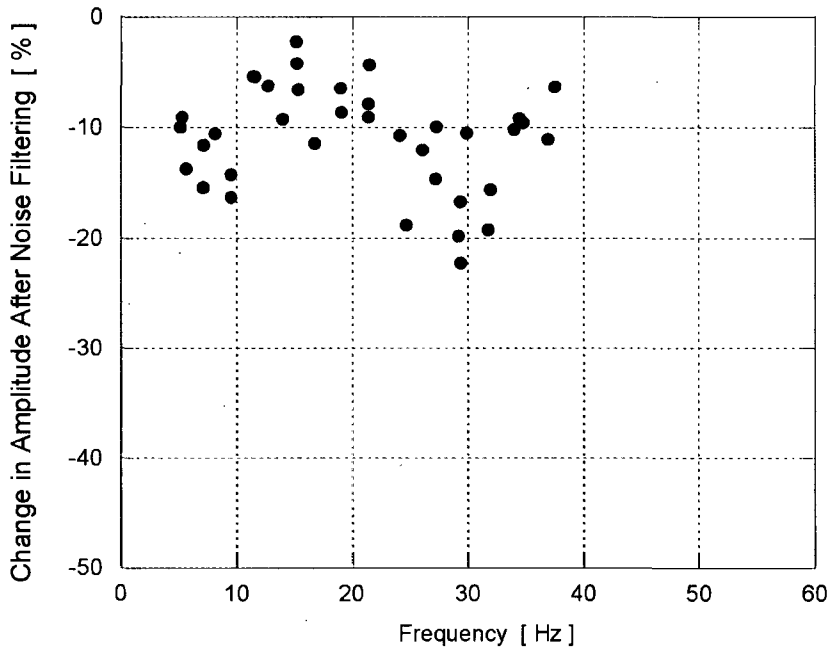
Figure EMCB.147-2h: PSD curves for the low power (LP) unfiltered (CLTP) and filtered (CLTP-LP) MSL D [[ ]] pressure signals at CLTP

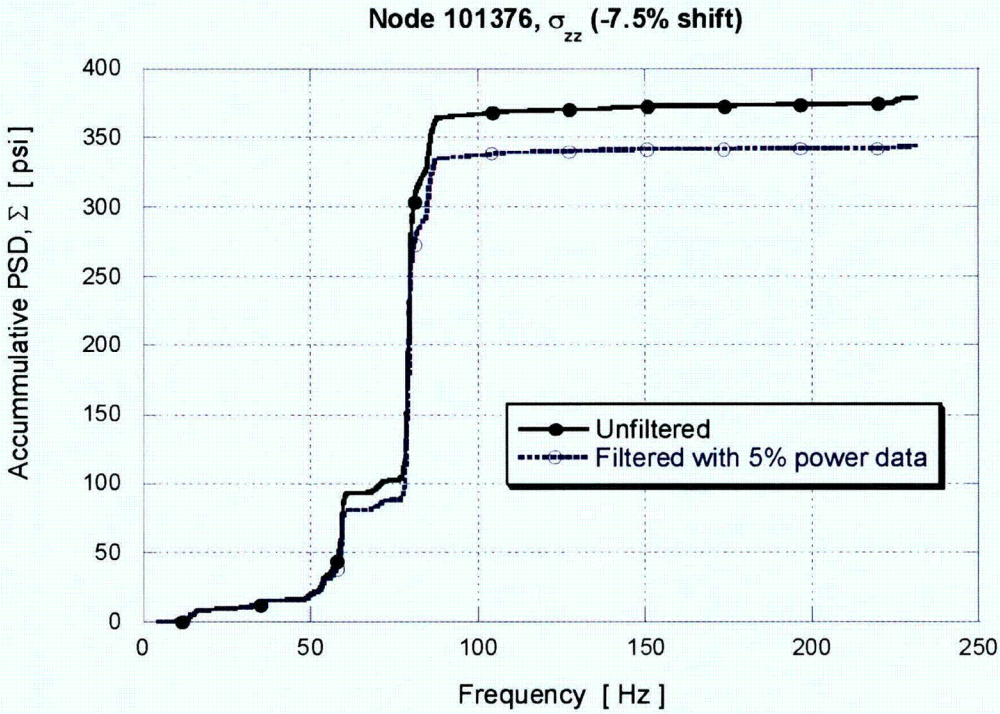


[[ ]] Amplitude Reduction



[[ ]] Amplitude Reduction

Figure EMCB.147-3: Change in MSL pressure signal amplitude after noise reduction using the 5% power data



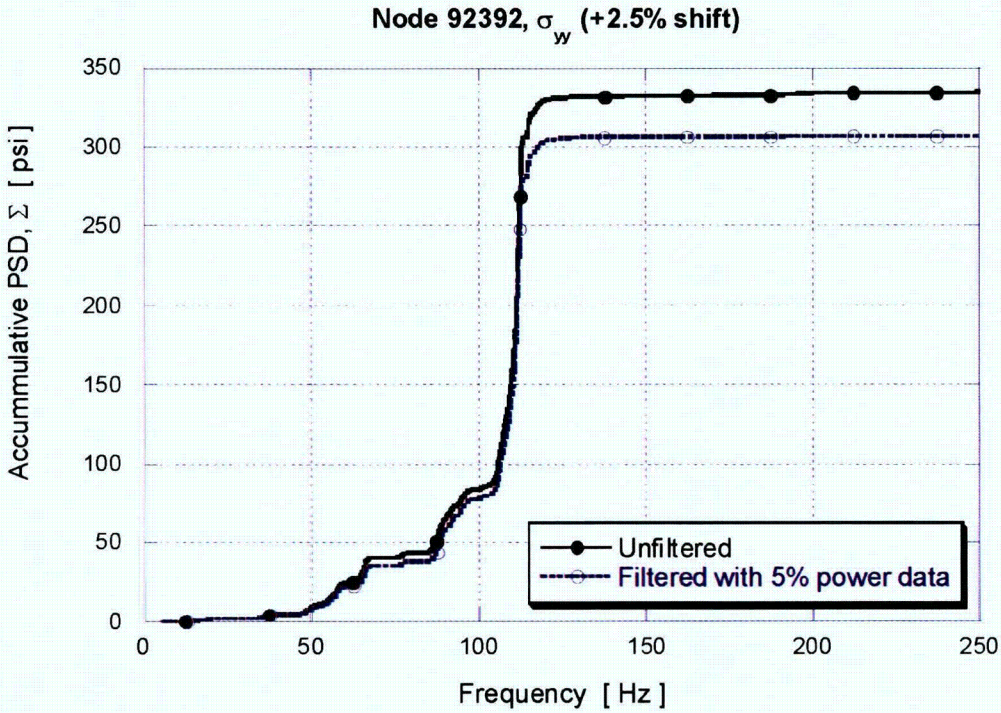
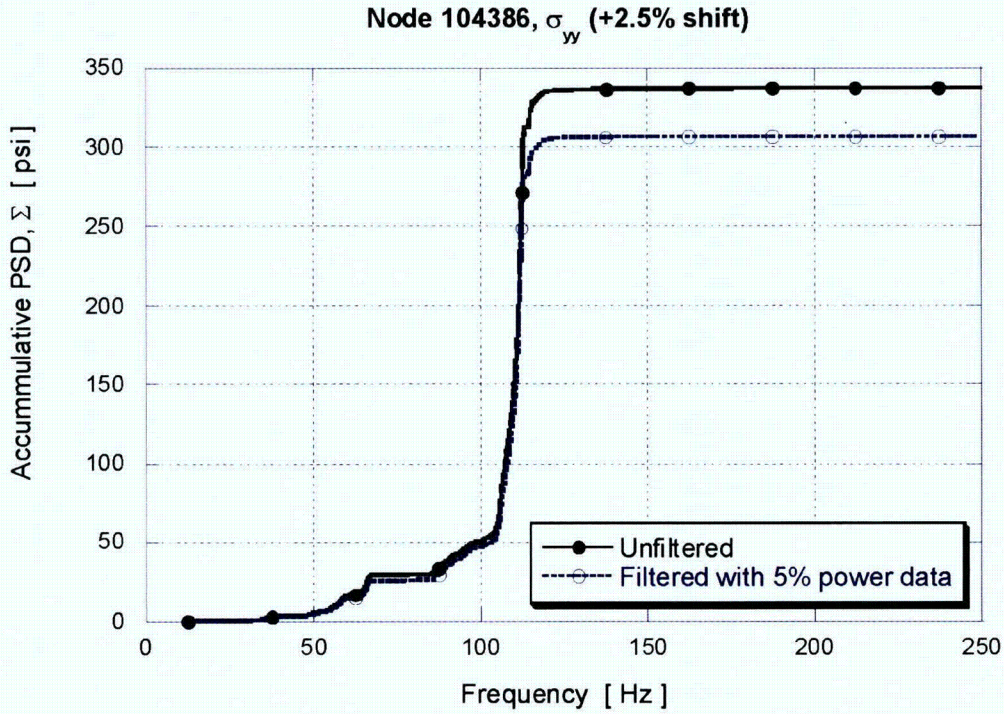


Figure EMCB.147-4a: Accumulative PSD curves for nodes 101376 and 92392 with and without noise reduction



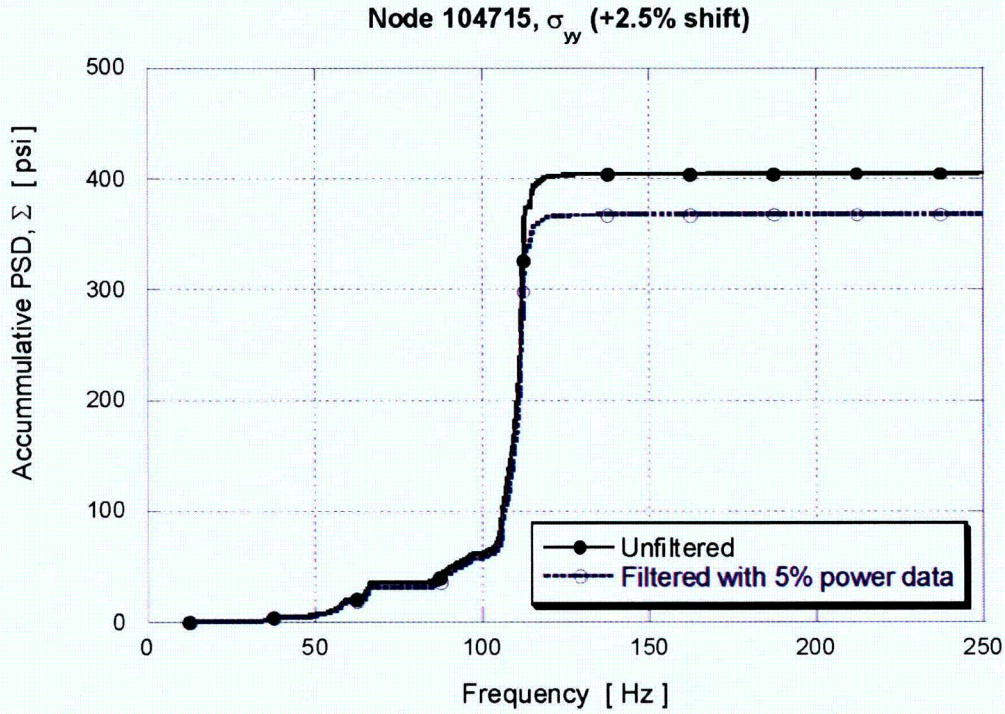
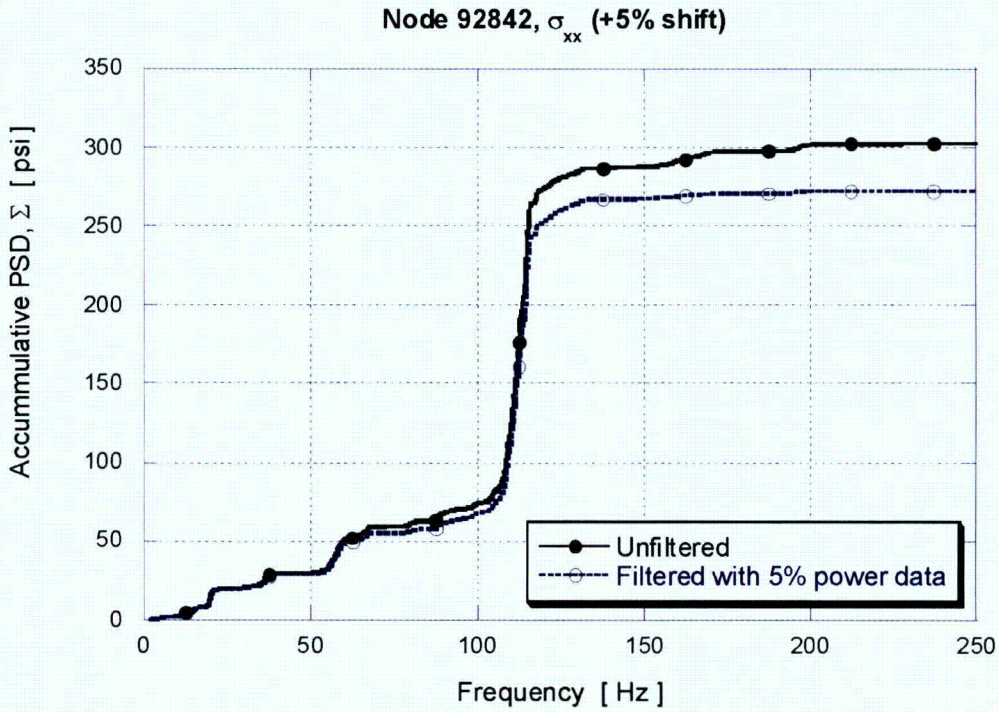


Figure EMCB.147-4b: Accumulative PSD curves for nodes 104386 and 104715 with and without noise reduction



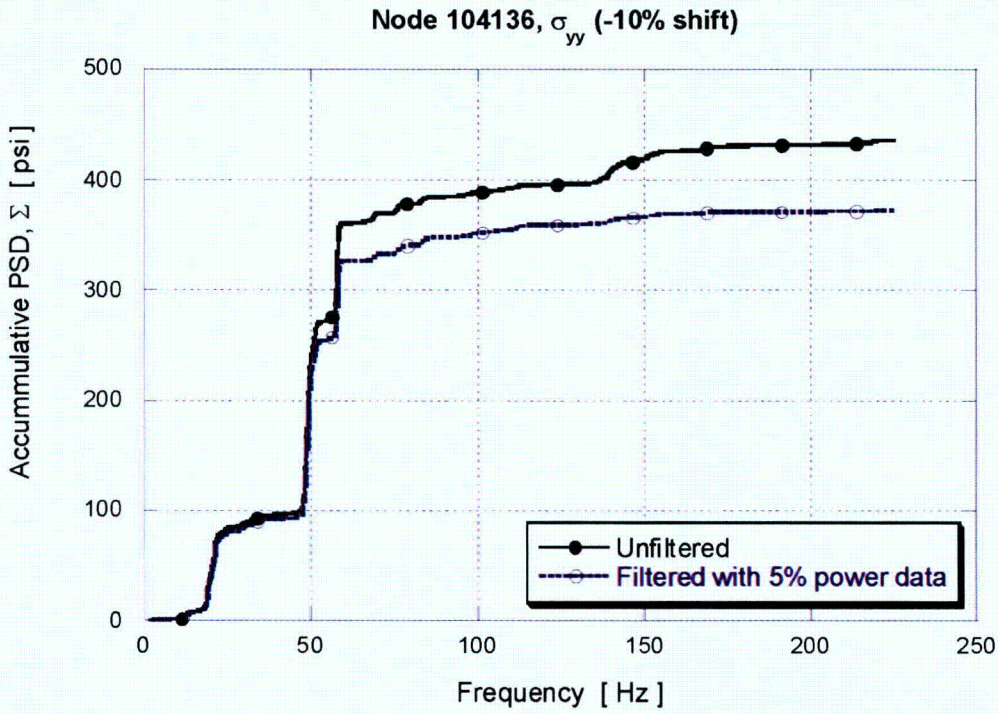
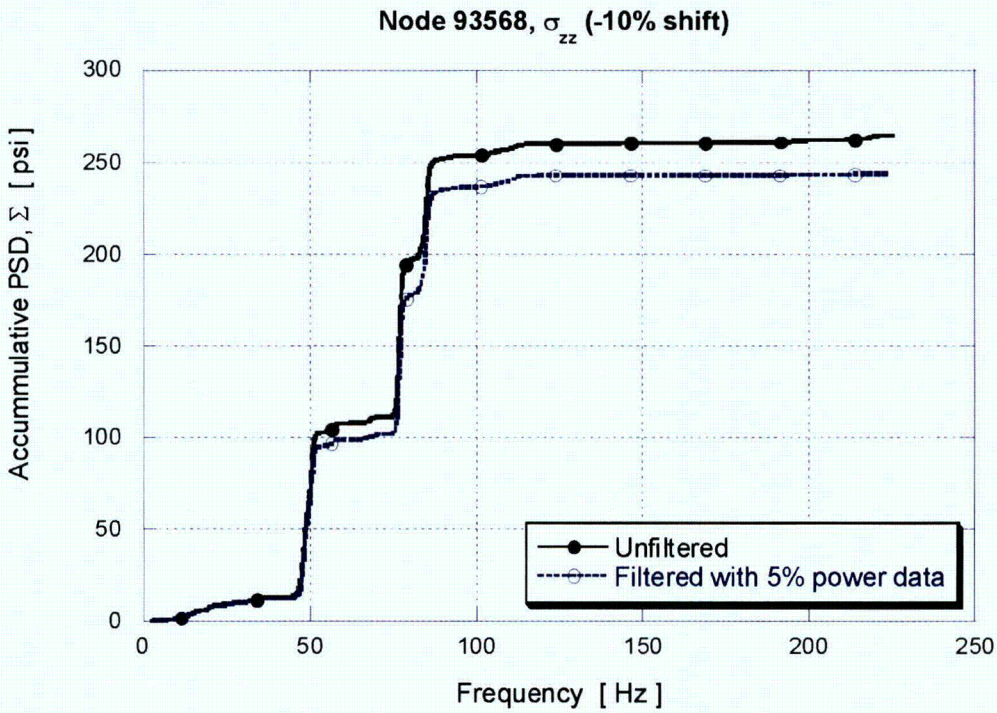


Figure EMCB.147-4c: Accumulative PSD curves for nodes 92842 and 104136 with and without noise reduction



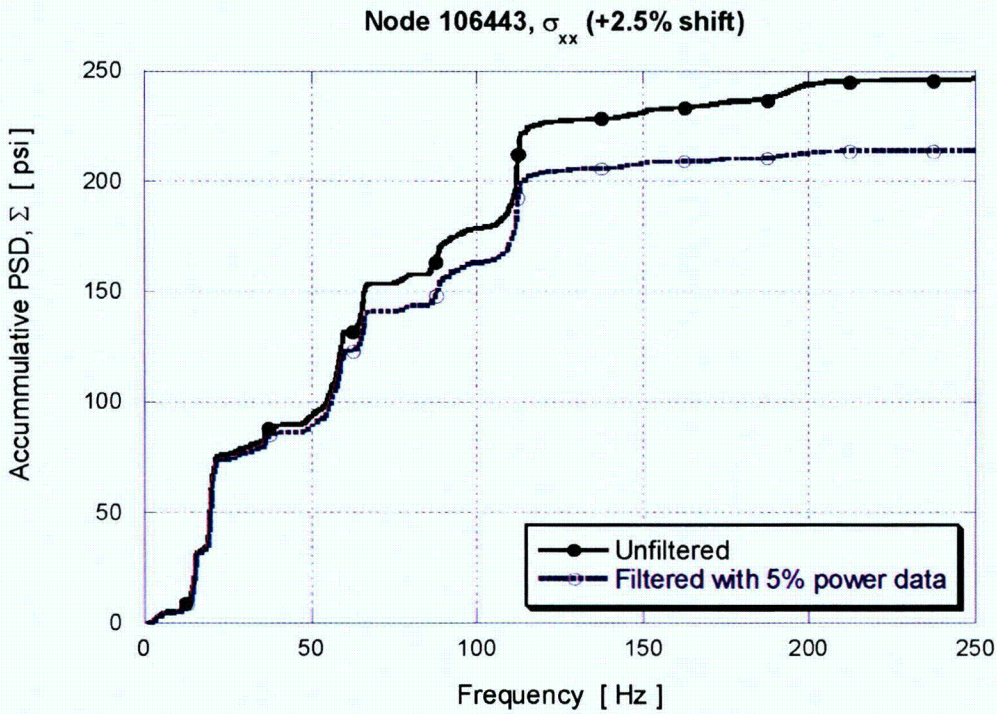


Figure EMCB.147-4d: Accumulative PSD curves for nodes 93568 and 106443 with and without noise reduction

RESPONSE TO DRAFT ROUND 22 RAI

NRC RAI EMCB.200/157 (Units 1 and 2)

As part of the presentation provided during the October 14, 2008, public meeting, TVA provided the following equation for the steam line unsteady pressure at CLTP:

$P_{CLTP}=C_{CLTP}(CLTP-EIC_{CLTP})-C_{LF}(LF-EIC_{LF})$,

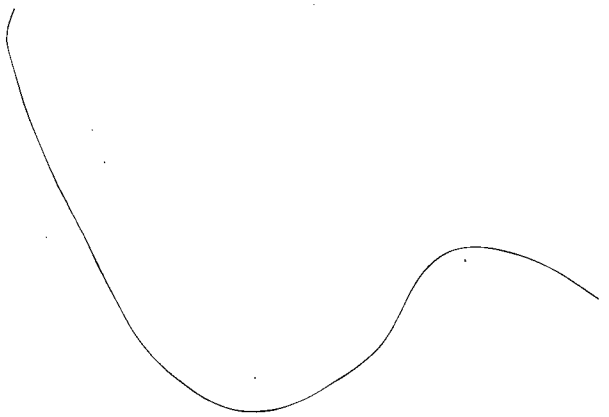
where P is the steam line unsteady pressure, C is the coherence factor between upper and lower locations, LF is the low flow signal, and EIC is the signal taken with zero excitation voltage.

The equation implies that the coherence factors between the upper and lower strain gage locations are the same for both the CLTP signal and the corresponding EIC signal. However, it appears to the staff that the equation may not be conservative in all cases. In the event the coherence between the EIC signals on the upper and lower arrays is 0, it appears that the coherent portion of the signals at CLTP or LF already excludes the incoherent EIC signals. Therefore, it appears that subtracting the EIC autospectra from the individual CLTP and LF signals and then multiplying by the coherence removes the EIC noise twice.

Address whether the EIC noise reduction procedure proposed removes the EIC noise twice. If the proposed does, provide the means to more appropriately account for the coherence of the EIC signals.

TVA Response to EMCB.200/157 (Units 1 and 2)

[[



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NRC RAI EMCB.160 (Unit 2)

On slide 10 of the presentation provided during the October 14, 2008, public meeting, TVA provided graphs of the MSL EIC signals. For example, the variable frequency drive (VFD) spectral peaks are sometimes up to 4 orders of magnitude higher than the EIC signals used in the noise removal process. The EIC signals are, therefore, a very small fraction of the total dynamic input range of the measuring system. For example, if it is assumed that the measuring system is accurate within 0.1 percent of the dynamic input range, this error level is already about 10 times higher than the broadband level of the EIC signal, which is used for noise removal. Address the uncertainties in the EIC signals while it is removing the noise from the Unit 2 CLTP signals.

TVA Response to EMCB.160 (Unit 2)

Slide 10 of the presentation provided during the October 14, 2008 meeting showed PSD plots to illustrate unfiltered noise on BFN Unit 2. The PSD plot for MSL A Upper from Slide 10 is reproduced in Figure EMCB.160-1. The magnitude shown on the plot represents the square of the measured signal. Figure EMCB.160-2 is the same data with the Y-axis re-scaled to show the magnitude of the peaks. It can be seen that the peaks are two to three orders of magnitude above the nominal signal when considering the square root. The maximum peak signal is approximately 60 pounds per square inch (psi). The data acquisition equipment is scaled for a maximum range of 150 psi peak for all data collection at BFN, which is typical of other BWR steam dryer monitoring efforts. This avoids saturation of the instrumentation.

For the BFN Unit 2 steam dryer load definition, the uncertainty assigned to pressure measurement is 4.04% as discussed in the response to RAI EMCB.155/122 provided in the March 6, 2008, submittal, "Response to Round 15 RAI Regarding Steam Dryer Analyses, Group 2." Because the pressure measurements used for load definition are changes in strain relative to mean rather than absolute values, the uncertainty associated with the data acquisition equipment is determined by the sensitivity. Based upon a 150 psi peak maximum range, the minimum sensitivity of the measurement is

$$\frac{300\text{psi}_{\text{p-p}}}{2^{16}} = 0.0046\text{psi}$$

for the 16-bit Analog to Digital converter. The nominal EIC signal is on the order of 0.01 psi and is well above the minimum resolution. The accuracy of the measurement system is 0.12% of the reading; consequently, the resolution is the most important factor in the uncertainty.

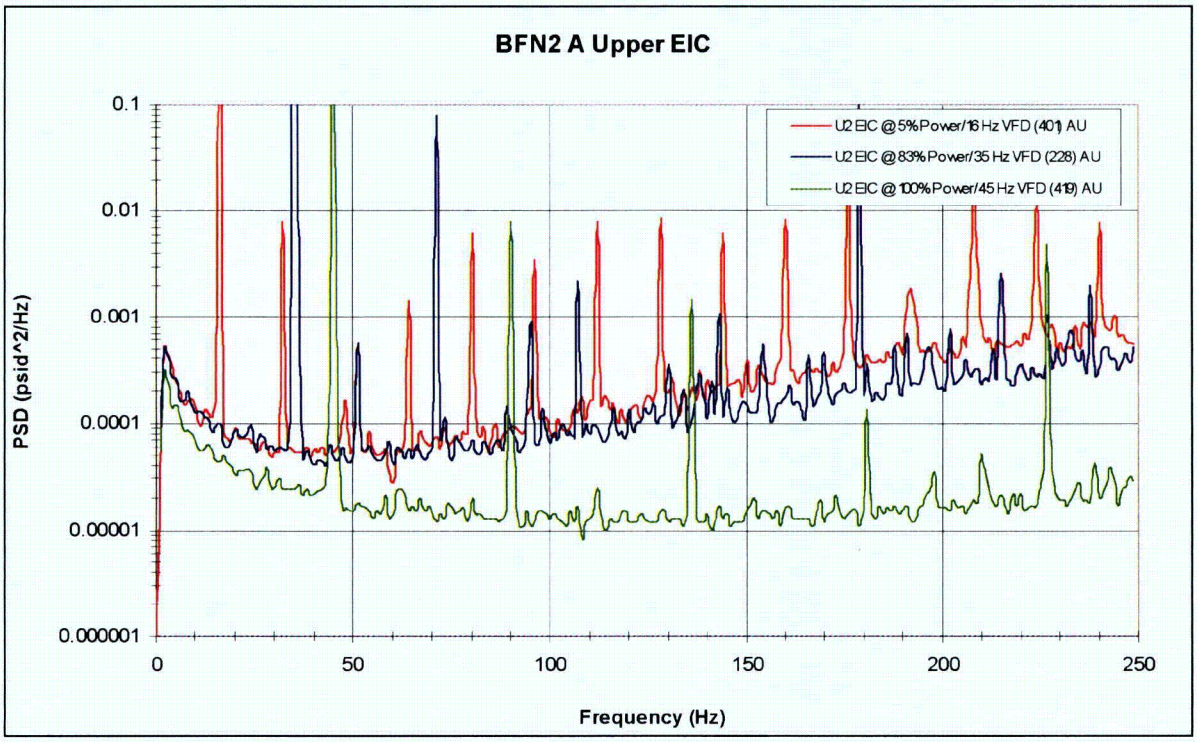

Figure EMCB.160-1: BFN Unit 2 MSL A Upper PSD Plot

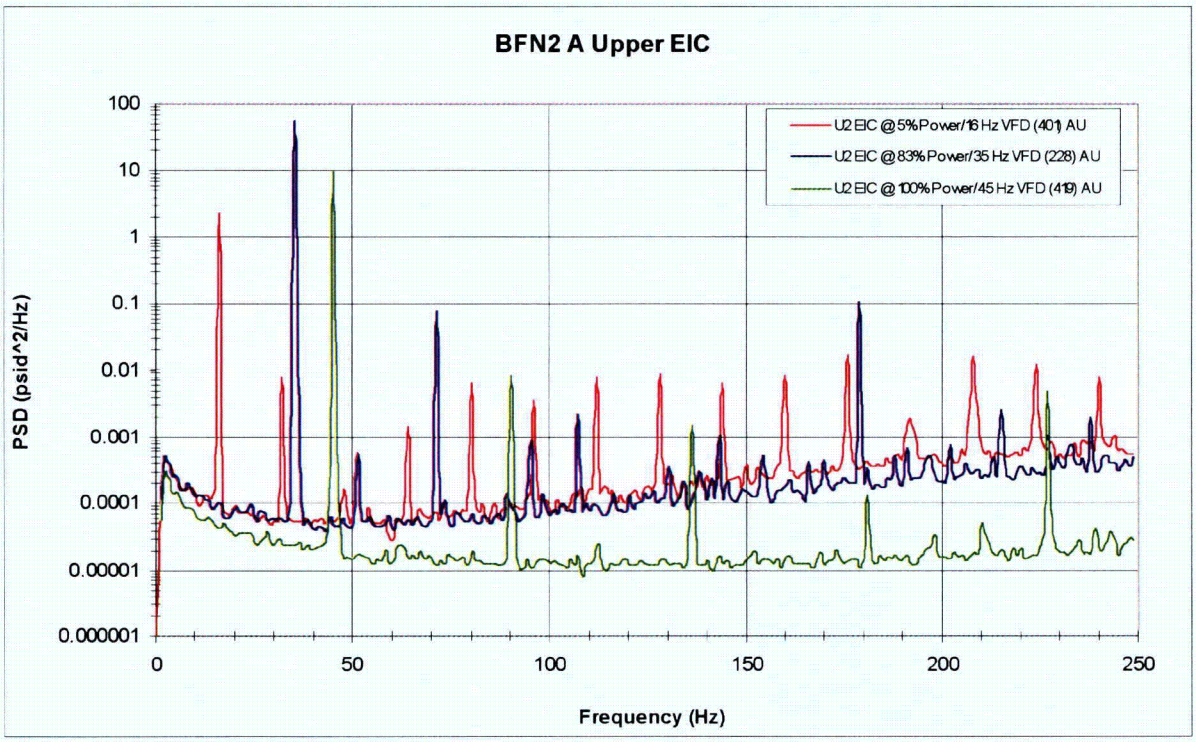

Figure EMCB.160-2: Re-scaled BFN Unit 2 MSL A Upper PSD Plot